

PLANTING NEW SEEDS: INNOVATIONS IN GLOBAL SEED SYSTEMS

PRESENTATION CHAT TRANSCRIPT

SEPTEMBER 23, 2020

PRESENTERS

Rob Bertram, USAID Bureau for Resilience and Food Security

Gary Atlin, Bill & Melinda Gates Foundation

Michael Quinn, CGIAR

Nora Lapitan, USAID Bureau for Resilience and Food Security

Simon Winter, Syngenta Foundation for Sustainable Agriculture

MODERATOR

Zachary Baquet, USAID Bureau for Resilience and Food Security

Adam Ahmed: Greetings Everyone. We will get started in about 45 minutes. In the meantime, please let us know where you're joining from today. we are glad you are here with us.

noel chanza: noel chanza from malawi working with seedco malawi LTD

Adam Ahmed - Agrilinks: Hi Noel, glad to have you with us!

noel chanza: adam my colleagues from malawi are failing to connect to the training

noel chanza: please help

Chimwemwe Josia: i am chimwemwe Josia, from Malawi an employee under SeedCO

Munyaradzi Jonga: Munya Jonga from AATF, Kenya

James Banfill: James in Seoul, South Korea

Domisian Mabula: Domisian Mabula from SNV, Tanzania

Oliver Nyongesa: Hi this is Oliver Nyongesa from IRRI Kenya

Eric Lerner Kagezi: Eric Lerner Kagezi working with Program for Biosafety Systems/International Food Policy Research Institute Uganda

simon njau: Hi everyone, this is Simon Njau from IRRI-Kenya

Trish Nyarumbu: Hello everyone. Am Nyarumbu Trish from Horticulture Research Zimbabwe

Erik Delaquis: Hi all, Erik Delaquis from the Alliance of Bioversity International and CIAT (CGIAR). Based in Laos

Gary Atlin: Hi, Gary Atlin from the Gates Foundation

Peter Hanson: Peter Hanson, tomato breeder from the World Vegetable Center

Jean Rubyogo: Jean ClauDE : Hello - from the Alliance of Bioversity International and CIAT (Alliance) /Pan Africa Bean Alliance (PABRA)

Charles Asirvatham: Greetings, am Charles from South Africa

Charles Fasina: Hi everyone, I am Charles, I'm a Senior Program Officer on Rural Communications and Sustainable Development.

Timi Omole: Hello, Timi Omole from Nigeria

Timi Omole: Good to be here and looking forward to this learning session

Charles Fasina: I am from Osogbo, Nigeria.

Rob Bertram: Greetings and welcome everyone!!

Modom Banla: Banla Modom from Togo

Modom Banla: Banla Modom from Togo

Zachary Baquet (USAID/RFS): Good Day All, Zachary Baquet with USAID Bureau for Resilience and Food Security. I am joining from DC.

Brett Rierson: Good day all, Brett Rierson from Harvest Agricultural Solutions in Kampala, former head of WFP Global Post-Harvest Centre

Mel Oluoch: Mel Oluoch from Sasakawa Africa Association. Based in Ethiopia

Ellen Grace Soberano 3: Good morning. Ellen Grace Soberano joining from Central Philippines State University.

Andrea Allen: Greetings from Michigan.

Zachary Baquet (USAID/RFS): Welcome Banla, Charles, and Timi! Thank you for joining us today

Jose Gomez 2: Greetings from El Salvador

RITA JERA-GWARADA: Rita Gwarada from Zimbabwe

Clemen Gehlhar: Good morning everyone, Greetings from Clemen Gehlhar from USDA/Foreign Ag Service/Global Programs/Ag Econ Devt Division, in DC

Zachary Baquet (USAID/RFS): Hi Jose and Andrea! Glad you could join us today

Zachary Baquet (USAID/RFS): How are you today Clemen and Rita? Welcome!

Dick Tinsley: Dick Tinsley back home Colorado

Louise Sperling: Louise Sperling- from SeedSystem, USA

Pepijn Schreinemachers: Hello everyone! This is Pepijn Schreinemachers from World Vegetable Center in Bangkok, Thailand.

Clemen Gehlhar: Happy to be here. Thanks Zachary!

Simon Winter: hello everyone - great to be having this discussion today!

Julie mayans: Greetings from Paris

Emmanuel Monyo: Greetings from Arusha Tanzania

David Rohrbach: Happy to listen to new ideas

JOHN KARONGO: John KARONGO- Rgional Agronomist - International Committee of the Red Cross- Nairobi

Lucy Asare-Baah: Lucy BaaH from Tuskegee University, Alabama. Glad to join.

Rob Bertram: Dave! Great to have you join us!!

noel chanza: Is there any direct link that you can share here so that my colleagues can longin to be part of this training?

Edward Walters: Ed Walters technical advisor agriculture and markets, CRS

Zachary Baquet (USAID/RFS): Hi Lucy, John, and David! Glad you could join us today

JOHN KARONGO: Regional Agronomist - International Committee of the Red Cross - ICRC/Nairobi

Lawrence Kenyon: Lawrence Kenyon Good evening from WorldVeg Taiwan

Michael Weinraub: Hello everyone. I'm Michael Weinraub with USAID/RFS/KDLT in DC.

Dr. Safiuddin Ansari: Happy to connect with All impressive and important persons

Suzanne Nelson: Suzanne Nelson from Tango International in Tucson, Arizona

David Spielman: David Spielman, IFPRI, Washington, DC

Zachary Baquet (USAID/RFS): Agrilinks had a Seed Systems theme month this June. You can check out all of the great posts from that month here: <https://www.agrilinks.org/post/june-seed-systems-mont>

Rob Bertram: great to see so many colleagues thanks for joining us! hope we have lots of time for discussion!

Julie mayans: Julie Mayans, Food Security and Livelihood advisor, Solidarites International, France

Boris KOUASSI: Hi everyone, Program Associate myagro, Senegal

Ravi Singh: Hi Gary Rob and colleagues- Good morning from CIMMYT Mexico

Neeraj Sharma: Neeraj Sharma, International Potato Center (CIP), Vietnam

David Rohrbach: Great to be able to join you!

Zachary Baquet (USAID/RFS): Hi David! How are you?

Irene Muvumba: Greetings everyone from Irene . Of Elagrico/ DRC

Dr. Safiuddin Ansari: Hello

Marijn Voorhaar: Hello, I'm Marijn working at ICRISAT India

Hannele Lindqvist-Kreuze: Hannele Lindqvist-Kreuze, CIP, Lima, Peru

Dick Tinsley: loud and clear

Carol Jenkins: Good morning! Carol Jenkins here, Center for Agriculture-Led Growth, Bureau for Resilience and Food Security, USAID/Washington

Narinder Dhillon: Hello to everyone

Jan Low: Jan Low from International Potato Center in Kenya

James Woolley: James Woolley, USAID Haiti

Aaron Larsen: Aaron Larsen, Ag & Livelihoods TA for Samaritan's Purse

Lemane Delva: Good Morning Lemane Delva, UF AREA programs in Haiti

Dyutiman Choudhary: Hello, I am Dyutiman Choudhary, CIMMYT/Nepal. Coordinator, FTF Nepal Seed and Fertilizer Project

Parth Sarothi Saha: Hi, I'm Parth Saha,IRRI Bangladesh

Lana Howard: Hi everyone! Lana - Contractor at AgDiv Malawi

Ajay Panchbhai: Hello everyone. This is Ajay Panchbhai from IRRI

lafaale enoka: Hello everyone!

Gorden Mabuyaye: Hello everyone. Gorden Mabuyaye from Seed Co International

Edward Kanju: Hi, I'm Edward Kanju at IITA-Kampala.

herve thieblemont: Herve Thieblemont SFSA Asia

Tara Dean: Tara Dean, from Piestar, Inc., a data collection and management software company that supports 11 FtF Innovation Labs! (Based in Kansas, USA)

Dick Tinsley: a little louder please

Abbi Dingus: Goodmorning! I am a Grad Student from Michigan State University

Zachary Baquet (USAID/RFS): Welcome Herve and Edward! Thanks for joining us today

Kate Longley: Hi All. This is Kate Longley from CRS

Zia Ahmed: Hello everyone! This is Zia Ahmed from Bangladesh

Muni Muniappan: Muni Muniappan, IPM Innovation Lab

Zachary Baquet (USAID/RFS): Hi Tara and Gorden! Welcome to the webinar

Morven McLean: orven McLean, Agriculture & Food Systems Institute

Yvonne Mutinda : Hallo, Yvonne from KALRO Kenya

Zachary Baquet (USAID/RFS): Good to have you with us Abbi and Kate!

Rafiqul Islam: Hello, Rafiqul Islam from IRRI

Zachary Baquet (USAID/RFS): Thanks for staying up late to join us Zia!

Paul Guenette: Hi Everyone. Executive Advisor, Trees for the Future

Scott Kleinberg: Hello, Scott Kleinberg from the Malawi Agricultural Transformation Initiative

Mercy Mitei: Hi everyone! Mercy here from Nakuru, Kenya

Zia Ahmed: @Zachary Baquet, thanksand welcome!

Lawrence Kent: Adobe connect is an unfamiliar and awkward software choice.

vivienne anthony: Good morning everyone. Viv Anthony here from Syngenta Foundation, Switzerland

Catherine Flanley: Hello! Cate Flanley from the Center for Agriculture-Led Growth, Bureau for Resilience and Food Security, USAID/Washington

Zachary Baquet (USAID/RFS): Welcome Morven, Yvonne, and Rafiqu! Thanks for joining us

Timothy Byrne: Hi All. Tim Byrne, AbacusBio

Floortje Jacobs: hi, Floortje Jacobs here from Fresh Studio, Myanmar

Zachary Baquet (USAID/RFS): Hi Cate, Viv, and Lawrence! Welcome to the webinar

Carol Jenkins: Hi Dyutiman! Great to see you here! Hope all is well in Nepal.

David DeYoung: Hi everyone, David DeYoung from Feed the Future Innovation Lab for Legume Systems Research, based at Michigan State University

shah faruqui: Hi everyone, Shah Faruqui here from VetAgro

Joseph Quansah: Goodmorning everyone!

Zachary Baquet (USAID/RFS): Thanks for joining us Shah and David!

Dyutiman Choudhary: Thanks Carol. We are doing good. Hope you are well too!

Zachary Baquet (USAID/RFS): Good Morning Joseph! Welcome!

Tom van Mourik: Hi everyone, Tom van Mourik here from the Royal Tropical Institute (KIT) in the Netherlands

Denise Mainville: Hi, Denise Mainville here, Market Systems, Gender and Evaluation specialist. I'm sorry if i missed this, but what is meant by "weight of genetic gain"?

Denise Mainville: Sorry, **rate** of genetic gain

David Spielman: I think it's "rate of genetic gain" and "weighted varietal age" being referred to

Denise Mainville: Looks like it refers to percentage increase in yield.

Rob Bertram: that's the rate of growth in yields in farmers' fields as measured by a year by year basis...a measure of progress in terms of the genetic contribution to overall productivity

Mark Huisenga: "genetic gain," is defined as the improvement in average genetic value in a population or the improvement in average phenotypic value due to selection within a population over cycles of breeding

Denise Mainville: Thanks, Rob and Mark.

Lawrence Kent: In Africa is the primary problem the fact that farmers are sowing seeds of older released varieties, or is the primary problem the fact that farmers are sowing seeds that do not emanate from breeding programs at all -- landraces? Could the problem be a simple lack of reliable access to seeds of improved varieties?

Mihiretu hundayehu: Connecting to the meeting has been very problematic today

Rob Bertram: hope you are in now

Tom van Mourik: Hi @Lawrence Kent, from my experience it is a combination of both. Depending on the type of crop, it's "traditional" character and the access of communities to research information and seed, it varies.

Srini rajendran: Hi everyone. Srini here from CIP Nairobi office. I have similar problem. it took long time to connect through this software.

Mel Oluoch: In Africa, the primary problem is that they have low yielding landraces which are better tasting than the new varieties So they stick with their landraces, sometimes planted in parallel with new varieties

Tom van Mourik: Hey Srini! Nice to meet you here. Congrats on the new publication!

Mihiretu hundayehu 2: yes it is working once I am in Thank you!

Elijah Mwashayenyi: Also had the same problem, took me 15min to get in

Kristin Lobron: Hi Stella here from IFDC ghana. I finally got connected but there is now no voice though I can see the screen.

Trish Nyarumbu 2: Difficult to access this meeting. This Adobe connect is not user friendly

Simon Winter: Mel's point is excellent - we need breeders to breed for customers and not for genetic gain alone - this is why the product profiles are so important - they need to be demand oriented

Meredith Porter: Agreed. It took me 20 minutes to get in and it's very buggy.

Zachary Baquet (USAID/RFS): Hi Elijah, Kristin, and Trish! Sorry that you had issues joining the meeting. We are looking into the lag issue. Thank you for your feedback

Ekin Birol: Same here - will the recording be available online?

Regina Eddy: Stella, in the upper left of your screen you see a speaker icon. Click the pull down menu to engage speakers

Adam Ahmed - Agrilinks: Yes, the recording will be made available in about a week

Lennart Woltering: hi Ekin, Tom, great to see ou here, i also like to know if there is a recording available

Floortje Jacobs: same here, slow system

Abdu Beshir: @ Gary, it is good you mentioned about product profiles to respond to the needs of different market segments. How this approach will respond in quite changing interest of commercial farmers, as developing new products takes time in breeding.

Natali Maidl de Souza: Trish Nyarumbu!!! Do you remember be? Nátali from Brazil \o/

Samirah Faruk: I also tried joining earlier but Adobe Connect recommened I download the app to be able to enter without the lag in joining and that was how I just joined by downloading the app

Julie Howard 3: Hi all -- Julie Howard from CSIS/Washington, DC. Whew - took a very long time to connect to the session.

Meredith Porter: Thanks Zachary!

Narinder Dhillon: Zachay: It will be great if you could share the presentations of the speakers with the participants

Srini rajendran: Hi Tom, good to see you here with your new hat! congrats and thank you so much for your wishes!

Adam Ahmed - Agrilinks: We will be sending out all of the event resources in about a week, including a recording and the slides. We are deeply sorry for any technical issues you are experiencing today

Scott Kleinberg: Simon, the Israeli innovation system provides a useful case in point and features close collaboration with farmers.

Brett Rierson: Lawrence Kent, probelm we see across multiple countries in East, South and West Africa is providence, and counterfeit seeds, with little effective enforcement of legal rights, and little downside in terms of punishment for those who cheat. This undermines the profitability of markets, and discentivizes private sector seed companies

Jauhar Ali: Hi All Greetings from IRRI

Srini rajendran: Good to hear there recording is available. Thanks for the update.

Stephen Walsh: Just connecting - after a dozen attempts.!

Lennart Woltering: HI all, greetings from CIMMYT Mexico- Lennart WOltering working on Scaling of Innovations/ impact. it took me 30 minutes to connect

Charu Chandra Devshali 2: HI Zac! Charu from MS Swaminithan Research Foundation here. Missed the first 20 minutes because the servers could not be reached. Do we get the recorded session after this?

Margaret McEwan: finally, i have managed to get in.....

Lawrence Kent: Ask a Nigerian cassava farmer: Why aren't you planting an improved variety? And she is likely to say "Where the heck would I buy seed of an improved variety? Nobody sells planting materials around here."

Jan Low: System has frozen

Adam Ahmed - Agrilinks: Yesm we will be sending a recording of the webinar

Zachary Baquet (USAID/RFS): @Charu, yes the recording willbe available after the event

Inhyuk KYE: Hi All Greetings from Korea

Kristin Lobron 2: Finally I can hear the presenter

Samirah Faruk: @Lawrence Kent.....Yes I agree but then again it is too expensive.... I am from Nigeria

Regina Eddy: Lawrence, Agreed. For many smallholder households purchase of an improved seed is not in their budget and not a norm

Simon Winter: great pint Scott - we will soon be publishing a book that analyses lessons from agri-innovation successes across Israel, India and China - 'From Food Scarcity to Surplus: Innovations in Indian, Chinese and Israeli Agriculture -by Ashok Gulati et al

Stephen Walsh: What is an improved variety from perspective of a Nigerian cassava farmer?

Denise Mainville: Is there any way to make a comment or ask a question to the speaker directly? I see the pull-down in the upper left mentioned by Regina, but it only allows canned responses.

Scott Kleinberg: Brett, I think your point is so important. Better seeds don't matter if there's no quality control in the supply chain, and counterfeit control is a political economy issue. Agricultural policy programs need to be oriented towards supporting this issue.

Lawrence Kent: In Africa, for most crops, the primary issue is more often the transition from land races and saved seed to the purchase of seed of improved varieties. More so than the switch from one improved variety to another.

Eric Witte: Finally got in after a half hour of trying.

Gary Alex 2: To what extent is the slow varietal replacement due to not having the varieties that meet farmers' need? An old problem. What systems are in place to ensure breeders are meeting needs.

Zachary Baquet (USAID/RFS): @Denise please type your question in the chat box and let us know which speaker the question is for

Mel Oluoch: @Lawrence...I fully agree with your assessmet

Scott Kleinberg: Thanks Simon - look forward to it. I think there's a lot to gain in bringing the farmer's voice into the innovation system.

Denise Mainville: @Zachary--thanks.

Kristin Lobron 2: Our experience in Ghana is that there is slow release of the new varieties partly due to lack of resources to support scietists in release process.

Regina Eddy: Hi Eric. I'm glad you persisted. I have been hearing this reported in terms of connection issues

Gary Alex 2: I also had a hard time gettign logged in!

Ian MacNairn: Lawrence I agree with your assessment too.

Regina Eddy: Hi Scott - Great you are able to join!

Gary Atlin: The product profile "movement" is an effort to address the problem that Gary Alex mentions

Tony Gathungu: Finally logged on. Been trying for 40 minutes

Stephen Walsh: Improved seed - in terms of genetics and quality of the planting material - does not necessarily have to be NEW.

Alice Kosgei 2: finally have managed to get in

Kristin Lobron 2: Even with the release of varieties done, production of seed and reaching the farmers becomes a challenge.

MARTIN NDOMONDO: I had to re-install AdobeConnect to be able to join.

Scott Kleinberg: HI Regina, too long!

Mihiretu hundayehu: On the previous presentation: if you do 3 to 4 cycles per year this means you are testing under irrigated conditions. Most farms don't have irrigation. While I agree that the number of on-farm trials needs to increase it is important that the trials represent true farmer conditions and not only those of a small group of "advanced" farmers

Dick Tinsley: When I was in Ghana a few years back, they had not gotten and new genetic material for rice in many years and were barely able to maintain the lines they had let alone develop new one

Paul Guenette: Lawrence makes a good point. Smallholder farmers often lack the capital to invest in high productivity/high cost seed systems.

Zachary Baquet (USAID/RFS): For those who had troubles getting in, thank you for your tenacity to attend the event and we are checking with Adobe about the issue. I apologize for the technical difficulties

Denise Mainville: Question to speaker(s): Poor matching of seed varieties being developed with farmers/consumer priorities was a problem when I was working on seed systems in grad school, 20 years ago. What impedes improvement at the CGIAR systems level given that this is not a new problem?

(And apologies if you already addressed this--I'm finding the format a little difficult to follow--many simultaneously moving pieces.)

Natali Maidl de Souza: Many thanks @Zachary

Stephen Walsh: +1 Dick Tinsley. Rockets are a good way to travel but bicycles can work too.

MARTIN NDOMONDO: Thanks Zachary

Gary Atlin: When I talk about advancing 3-4 generations per year, I'm talking about inbreeding only, not testing. Testing has to take place in the main season, under conditions similar to farmer management

Paul Guenette: In-country seed systems across the Sahel are extremely weak. The existence of good seed varieties is one thing, but getting seed approvals, R&D trials in-country, and extension systems remain very weak.

Jose Gomez 2: How do you measure progress of varieties being released? Is your indicator global or by country?

Dick Tinsley: you really need to pump improved varieties into the informal seed market system, with most grains you have a 1 to 50 multiplying factor thus a small amount of seed can blanket an area in 2 or 3 years.

Kristin Lobron 2: @Dick its true that variety development has been slow for the above stated challenges. Currently we have new varieties that have been produced but the reach of farmers is still low.

Domisian Mabula: Since most improved varieties are tagged with high price and they are to be used once, but due to market fluctuations-Covid 19. There is no assurance of return on investment to most SHFs, is there a way to support them so that SHFs are able to have energy to invest for the next season?-Be introduction of 1,2,3,4 generations which can be planted and bear the same fruits?

Dyutiman Choudhary: NARES need germplasm but doesn't advance these through the seed companies to multiply and promote new varieties. Business models that offer exclusive licensing to seed companies are essential for seed scaling of preferred varieties.

Dick Tinsley: you might want to consider this webpage for getting material from CG supported national programs to smallholder communities:

https://webdoc.agsci.colostate.edu/smallholderagriculture/The_Crop_Genetic_Pump.pdf

Kristin Lobron 2: Thanks @Dick

Paul Guenette: Thanks Dick, good resource doc!

Abdu Beshir: @Gary, what time line are we considering to bring a new product profile to the farmers field (at commercial level) as we mention rapid genetic improvement. The case in point here is corn

Abdu Beshir: *here

Dyutiman Choudhary: Seed companies engagement in the developing product profiles supported by a good commercialisation strategy is key for demand driven seed systems

Rafiqul Islam: Most of NARES doing both trait introgression and variety release pipeline, led by same person/ team, that causes slow movement of the process.

Gary Atlin: Lawrence, I agree getting farmers to purchase rather than use saved seed is the critical issue in many markets and crops. But we need to make sure that there are real and large improvements in the new products we are promoting

Oscar Ortiz: I agree with Gary, the "willingness to pay" of farmers for seed of improved varieties is determined by their perception of the benefits, and the number of other risks they face

Dick Tinsley: can the formal seed system provide seed for more than a small percent of the farm land, and farmers will have to rely on market seed for 90% + of crop planted!!

Sarah Adeyemo: Hi Zach, I am from ILCI and none of my team members have been able to join. Is there a general link you can share here so they can connect to this meeting?

Stephen Walsh: @Dyutiman Choudhary. What about the cases where there is not a compelling business model for the seed company to sell seed repeatedly? In these cases, what are the best seed system architecture investments in terms of promoting demand driven seed systems?

Gary Atlin: Abdu, I guess a program "approaches" delivering a new product profile over several iterations. If it's a truly new type of variety, then it may take several breeding cycles. If you are just talking about delivering a 5-10% productivity gain, it should take about 2 breeding cycles or 6-8 years

Zachary Baquet (USAID/RFS): Hi @Sarah, let me check

Louise Sperling: On the formal seed system , at this point data show (large data set) that the formal systems provides 3% of the seed smallholders sow- and much of that is maize and some vegetable seed. It might be useful to look at other seed source options if high impact is to be reached for a range of crops (well beyond maize)

Zachary Baquet (USAID/RFS): Thanks everyone for driving a great discussion and providing your questions! Keep them coming!

Denise Mainville: @Zachary, for those of us that missed the introduction to this session, can we know what presentations are to come? Thanks.

Abdu Beshir: @ Gary, thanks! and in following we can assume that there will be emerging needs that requires to go for new PP.

Adam Ahmed - Agrilinks: @Sarah please have them use this link
https://kdlt.adobeconnect.com/planting_new_seeds/event/login.html

Utpal Barman: Adobe connect is not user friendly.

Kristin Lobron 2: Thanks Michael great presentation

Gary Atlin: Dick Tinsley, my understanding is that in intensifying systems, farmers are "refreshing" with purchases from the formal system more frequently. Louise Sperling could likely tell us if that's the case

Emmanuel Monyo: Many NARS do not have deliberate efforts to get new varieties through the seed system. Early Generation Seed of new varieteis is always a cconstraint tdue ot lack of prioritizaion on what shougl'd be prooduced. There must be deliberate efforts to cut out over aged varieties in favour of new sees and the starting point is int the EGS provison system

David Resetar: Hi this is David from Cycle Connect <anthony@cycleconnect.org>. If anyone has experience with improved maize or soya in northern Uganda, please reach out!

Rafiqul Islam: The HTG system, for genome wide 1000 SNP cost sould be lower and around \$5 per sample will help for NARES and CG organization to use in their breeding program for GS and BV estimation.

Oscar Ortiz: The "seed systems" concept tends to overgeneralize the complexity of the systems by which small scale farmers access to planting material. Understanding those complex sytesms and identifying the best entry points for different types of interventions (farmer based, public, public-private, pivate) is needed.

Louise Sperling: In terms of refreshing, much depends on the crop and the end use of the product. For instance, for select legumes, smallholders in Africa might refresh every 5-6 seasons (in absence of strong disease pressure). This is a longer conversation

Zachary Baquet (USAID/RFS): @Denise, after Nora we will have Simon Winter then Rob Bertram will summarize before Q&A

Sarah Adeyemo: @Adam Ahmed- Thanks for sharing the link.

Denise Mainville: @Zachary--thanks--can you tell me the presentation titles?

Lawrence Kent: We need both improved products AND seed systems that can produce, distribute, promote, market, and sell the seeds themselves. One without the other is insufficient.

Dyutiman Choudhary: @stephen we have to characterise the markets for seeds and develop market segments for e.g. commercial; semi-subsistence, subsidy markets etc so that the seed chain is maintained, seed demand is well estimated and farmers receive quality seeds in each of these seed value chain strands. Horizontal and vertical coordination mechanisms are good to develop.

Rob Bertram: David Resetar--please send me your message at rbertram@usaid.gov...i will connect be glad to try to connect you with expertise in both areas

Lauren Good: Brett Rierson, your point on counterfeiting is one commonly cited as a barrier for seed systems in East and West Africa. Are you aware of literature or other sources that documents the extent of how this is stifling investment by seed companies from bringing their best products to market? I'm not discounting the problem, just haven't seen good data on the extent of it as a barrier.

Rob Bertram: @Lawrence absolutely right!

Gary Atlin: Louise, I agree this varies greatly from system to system. Maize growers in ESA buy hybrids at high rates most years, recycling once. In Eastern India, small-scale rice growers are refreshing every second or third year

Gary Atlin: Fully agree, Lawrence and Rob.

Lawrence Kent: @Lauren Good. The NRCRI is asking you to make remarks at their current cassava seed naming meeting

Brett Rierson: I'd love to see an investment impact model that compares higher yields to reduction of post-harvest loss reduction. Even better would be something like a Copenhagen consensus comparison - where \$1 invested in yield improvement = \$x improvement to the smallholder farmer, versus \$1 invested in post harvest loss reduction = \$y to smallholders

Abdu Beshir: @ Michael, seed systems are complex and different from country to country in the developing world including seed policies, laws, implementations...etc. All have their implications on accelerated varietal turnover and how EiB will address this complexities.

Regina Eddy: To view the full study that Nora is describing, here is the link:
<https://osf.io/preprints/socarxiv/h2g6r/>

Abdu Beshir: @Lawrence, fully agree!

Charu Chandra Devshali 2: How accessible and available is the crop varietal data information (phenological and area sown) for running crop models at a regional scale?

Gary Atlin: Post-harvest loss is quite difficult to address through breeding, but is extremely important. Breeding and seed systems generally are not as important in Africa as improving soil fertility!

Julie Howard 3: Thanks, @Regina!

Pepijn Schreinemachers: But fruit and vegetables are more valuable than all cereals combined. Where are the fruits and vegetables?

Regina Eddy: Hi Julie! Great you could join.

David Spielman: Lauren raises an important point about "counterfeiting". A lot of the storylines around counterfeiting need to disentangle malfeasance by seed producers/retailers from other causes of poor quality seed, e.g., less intentional mistakes like poor maintenance breeding, multiplication, storage, handling, etc.

David Rohrbach: Main improvements- faster breeding in line with product profiles; gap remains the underdeveloped seed delivery system

Stephen Walsh: @ Paul Paul Guenette: Your suggestions for Sahel seem relevant where there is not a compelling business model for commercial seed sales yet where there is "improved germplasm". Per your suggestion some of the important field level seed system investments include R&D trials in-country, and extension systems. These are not going to be funded by commercial seed companies. We have a lot of important seed movers in the informal seed system yet they attract almost no investment

Brett Rierson: Gary, well said. I agree.

J Harte: @Zack Hello, how can I "save" this presentation so as to share with a colleague?

Lennart Woltering: @david thanks, good point on the counterfeiting, i didnt know that

Louise Sperling: I have a question for all (and what an interesting group). Counterfeiting has emerged as an issue for maize and veg seed. Are there instances of counterfeited seed on a regular basis for other crops?

Tom van Mourik: @Pepijn, I very much agree, where are the vegetables? At least as groups... Unfortunately not part of CGIAR crops

Adam Ahmed - Agrilinks: We will be sending out the recording of this webinar to all registrants in about a week from now

Brett Rierson: Louise, multiple examples for you in Uganda, will connect offline w you.

Abdu Beshir: @Louise, yes for rice as well!

Dick Tinsley: Another concern i have is funding for government seed certification programs to fund travel for the 3 annual visits etc and if not will certification be done informally with a little reward for the officer signing off on the certification. CAse study is Nigeria: Please review the following webpage: <https://smallholderagriculture.agsci.colostate.edu/impact-of-financially-stalled-government-limited-variety-improvement-seed-certification/> . <https://smallholderagriculture.agsci.colostate.edu/informal-income-opportunities-seed-fertilizer-voucher-program-of-afghanistan/>

Gary Atlin: The CGIAR tends to work on market-failure crops that are not bred by the private sector. This is not the case for many vegetable crops

David Spielman: @Louise: The largest body of research on this topic comes from Uganda/maize by Bold et al, Karachiwalla et al, and Fiala & Bariga.

Lucy Asare-Baah: @Gary. I am more concern on how improved seed to crop production has reduced farm losses. Are there some studies you can recommend?

Elijah Mwashayenyi: In East-West Seed, our commercial company focuses on breeding vegetable varieties plus , marketing and selling of seeds. Our non-profit foundation, East-West Seed Knowledge Transfer, focuses on bringing extension services to smallholder farmers in the vegetable sector to improve the production skills of farmers for better productivity, livelihoods, income and profitability.

This latter work is done in recognition that good seed should be accompanied by y relevant technical support to farmers

David Spielman: But these papers are definitely not the last word on this topic.

Pepijn Schreinemachers: @Atlin Which private sector is breeding vegetables in Africa?

Gary Atlin: Market failure also explains underdeveloped seed systems in SSA- it's extremely difficult to make money on rice, beans, or sorghum seed sales in Africa

Rafiqul Islam: An efficient PPP can really improve the seed system and improve the seed supply chain, investment should increase to develop this PPP on seed dissemination.

Daniel Abah: Thank Nora. Are you doing anything in Nigeria?

Gary Atlin: Seed sales/sales :)

Stephen Walsh: Hi Louise. During CMD pandemic and high demand for CMD tolerant cassava planting material, there were many cases of cassava stems being sold / traded - both to farmers and to NGO's - as tolerant to CMD but which were not.

Tom van Mourik: @ Pepijn East West Seeds!

Kristin Lobron 2: @Gary there is indeed urgent need to close that gaps that exist in market systems hindering seed access to farmers in rural hard to reach areas in SSA

Rafiqul Islam: Fully agreed @ Gary Atline

Dyutiman Choudhary: @ Louise -counterfeiting and fake rice seeds was a huge issue in Nepal especially for imported seeds. This is partly due to the lack of strong seed companies who can produce farmers preferred varieties. As seeds are imported and sold through agro dealers the compensation mechanisms are complex and farmers suffer huge losses. Governments have little control over these issues.

Gary Alex 2: The "Product Profile" approach has some benefits in establishing an integrated system. But, it strikes me that you get to step six before engaging with farmers to see if the new product fits the farming system. This seems ready made for problems with slow or non- adoption of "improved" products.

Jauhar Ali: @Nora need to invest in hybrid rice especially two-line hybrid rice

Floortje Jacobs: indeed gary, also interested from which point of the development farmers are engaged

Dyutiman Choudhary: @ Gary Alex 2 --agree with your point

Mel Oluoch: @Pepijn. Rijk Zwaan Afrisem, Technisem, Hygrotech and many others

Kristin Lobron 2: Its important to clearly identify and classify stakeholders when working with researchers to ensure there is awareness created and the demand created for the new varieties

Stephen Walsh: Things fall apart quickly when a 'commercially driven approach' is applied to crops / varieties with a weak business model. Yet, we keep trying.

Paul Kimurto: To get improved seeds of Climate resilient from SSA we need CGIAR-NARES and private collaboration to deliver for small scale farmers,, since the crops for food security has relatively low value for private seed companies

Gary Atlin: Agree with Lauren Good and David Spielman that counterfeiting is an annoying but not central problem. Companies with close working relationships with farmers and a commitment to their

markets are not likely to be heavily impacted by counterfitting. Maybe someone from East-West or SeedCo can comment

Abdu Beshir: @Gary Alex 2, that was the discussion raised with Gary earlier. The bottom line is you can't have new products now and then to respond to changing needs. But having a proper approach for developing PP for market segments is a way to go, my thought.

David Rohrbach: Except when we see many larger seed companies also sell 'mislabeled' seed

Gary Atlin: Louise, vegetable seeds that are internationally branded are likely to be particularly susceptible to counterfitting

Daniel Bailey: It's important to understand that crops that "aren't profitable for seed companies" are in fact profitable to seed sellers. We must strengthen the more informal seed systems and the QDS and Truthfully Labelled Seed "certification" systems.

Stephen Walsh: Is there any role in 'seed delivery' for an entity that is not a seed company?

Abdu Beshir: Re-counterfitting- it is also good to promote digital innovations where one can easily track seeds and varieties with QR code and even via blockchain technology. Mobile phones can easily be used for these purpose easily.

Gary Atlin: David Rohrbach, can you provide an example of a big company selling mislabelled seed?

David Rohrbach: send me an email; I can provide several

Dick Tinsley: if you only have 4 or 5 varieties in an area, how easy is it to determine what variety is being sold and how much contamination there is . For rice this is usually possible and would hinder the use of conterfit seed, particularly for local agro dealers mostly interested in repeat business?

Erik Delaquis: Great point by Stephen; commercially-driven approaches are not the solution to all the seed systems problems that we face. It was extremely clear from Nora's slides that RTB crop punch way above their weight in terms of impact on the poor - very limited examples of traditional commercial approaches working well to serve these people

Brett Rierson: David, am also interested - brett.rierson@harvest-solutions.org

Gary Atlin: Daniel Bailey, I agree that "unprofitable" crops can be profitable for seed sellers- as long as they don't have to invest anything in research, and very little in licensing

Rafiqul Islam: Stage gate system should implemented strictly to develop according to the Product Profile but most of the organization ignore it.

Stephen Walsh: @ Eric. Have a hammer and continue to look for a nail.

J Harte: @Louise Any agriculture/food system input or output that CAN be counterfeited WILL be counterfeited. Traceability success is spotty and expensive. However, progress is being made and it is up to us to identify the transparent/successful cases and why they work, and also to acknowledge the cases where investment was not strategic and outcome was poor. We have the knowledge to drive transparent/strategic investment and need to use that learning to better direct our work(s).

Domisian Mabula: In most cases, most government may be due to lack of competent personnels or political interest are not able to collaborate with breeders/ seed companies to multiply seeds. Monopoly of these governments are the source of failure of development of sustainable seed systems to the point that every player has incentive

Dyutiman Choudhary: @stephen, in Nepal there are several farmer cooperatives who have better market shares for maize and rice varieties than local seed companies.

Lawrence Kent: For OPVs like rice, beans, sorghum, we must make it easier for small seed companies to operate through public and reliable supply of early generation seed that they can obtain, multiply, package and sell. We need to make it easier for them to operate by minimizing the costs of doing business.

Paul Guenette: Good point, Rob, about speakers in sequence addressing the much-needed connections from science & breeding, through user feedback and market infrastructure.

Gary Atlin: Fully agree, Erik Delaquis, there are many crops that have no viable commercial breeding model, and need a lot of public investment at many levels in the seed production chain. In most systems, however, even VPCs, there is a role for private multipliers

Emmanuel Monyo: The science of seed delivery has not received the priority and support given to the science of product development. Until such time that this anomaly is properly addressed the problem on overaged varieties in farmers hands will remain

Dyutiman Choudhary: Hi Emmanuel---agree with you!

Simon Winter: Fully agree with Emmanuel - the complexity of product development is high, the complexity of delivery is even higher - but we need to embrace it - not shy away from it

Mohammed Hassena: Good that you mentioned that varieties move fast through the informal system. How we better support that system so that varieties reach farmers fast?

Abdu Beshir: Digital innovations in seed systems will also contribute to accelerated varietal turn over and other components of the seed system.

Lawrence Kent: Agree with Gary that "unprofitable" crops can be made profitable by making it easier for seed entrepreneurs to obtain early generation seed of compelling varieties and minimizing the costs of doing business.

Jean Rubyogo: Simon- many thanks . how do we connect informal and formal for legume and non highly commercial crops

Julie Howard 3: k

Kristin Lobron 2: Hi Emmanuel that is absolutely true. That is why varieties take so long to reach the farmers at grassroot level.

Sarah Adeyemo: @ Adam Ahmed- Is the recording going to be made available to the public? I will like to disseminate the recording with my team. Thanks for organizing.

Srini rajendran: I also agreed with Stephen and Erik. RTB seed are largely traded through informal sector which will make huge impact on smallholders livelihood but it requires systematic seed delivery pathway to provide access better access to quality seed

Abdu Beshir: Great presentaion from all the presneters!

Adam Ahmed - Agrilinks: @Sarah, yes, we will have it hosted on the Agrilinks Event Page, and also send out to all of the registrants.<https://www.agrilinks.org/events/planting-new-seeds-innovations-global-seed-systems>

Louise Sperling: Recent paper on leveraging informal systems and esp informal seed traders.. new article in Sustainability

Timothy Byrne: An economic selection index is a powerful way of measuring the impact of genetic gain. That metric seems to be missing in the product profile strcuture currently used

Dick Tinsley: with the high reliance on the informal seed market should we avoid hybrids that require formal seed source annually

Regina Eddy: Jennifer, glad you could join!!

Lauren Good: Stephen Walsh, yes as you know commercial seed producers can look different by country and crop. I believe that cassava is an example where it is increasingly attracting entrepreneurs. I think we may need to adjust what our perception of what constitutes a commercial producer/marketer to recognize the level of smaller entrepreneurial efforts - still quite commercial

Lawrence Kent: Kudos to each of the speakers and organizers. A very important topic and good discussions.

Kristin Lobron 2: Smallholder farmers are already moving faster than research in the informal seed systems as attested in the yellow bean in East Africa

Stephen Walsh: Thank you for noting that seed production can occur outside of commercial seed companies.

Amsalu Ayana Aga 2: To what extent empirical data is available separating impact of quality seed from the impact of variety and other inputs like fertilizer to encourage farmers' frequent seed replacement rate?

Jean Rubyogo: the start point of efficient seed systems is the right variety

Stephen Walsh: @Amsalu. Great question.

Margaret McEwan: Seed policies need to change to recognise informal seed systems i.e. that they are not illegal

Lawrence Kent: Agree with Stephen: important to broaden our understanding of seed entrepreneurs to include small scale multipliers and sellers of planting materials.

Greg Traxler: Are CGIAR/NARSs social scientists collecting the same type of “marketing information” as marketing professionals in the private sector in developed countries? What information would the minimum ideal product profile data set look like?

Paul Rugambwa: USA has done good job in extension programs, I am interested knowing any initiatives towards farmer extension programs

Lawrence Kent: Agree with Margaret McEwan.

Dick Tinsley: am i noting that the formal presentation was on breeding while the discussion is on seed distribution!

Kristin Lobron 2: Governments need policy guidelines to include the informal seed sector

Lawrence Kent: Hi Greg Traxler. We are currently looking at ways to tap into modern commercial market research and marketing techniques.

Paul Rugambwa: USA has done good job in extension programs, I am interested knowing any initiatives towards farmer extension program in Africa

Erik Delaquis: Also agree with Margaret. De facto criminalization of informal seed systems does nothing to discourage them, just renders them more opaque

Stephen Walsh: Responsibility has to fall back on non-commercial seed system investments to demonstrate ROI / impact: What is the value / impact of working with informal seed traders for small

grains / legumes? What are the returns to a community for making investment in community based seed production and links back to breeders for new germplasm?

David Spielman: @Amsalu: That's a great question. There are some interesting studies that try to separate the effects of improved farmer crop management behavior from improved genetics in what they plant. And I've seen papers that try to separate improved genetics from improved physical quality (i.e., comparing the same wheat variety but fresh vs. recycled seed). But not enough work has been done on this.

Mihiretu hundayehu: how do we maintain the genetic diversity in the informal sector when formal sector starts to dominate. Diversity also plays key role in climate change adaptation

Margaret McEwan: What do male and female seed users consider, when thinking about buying seed. Is it only the traits, or other conditions influence their decisions?

Jean Rubyogo: Despite the relatively highly developed seed systems - they still use old varieties e.g. maize H614 in Kenya

J Harte: Regina, with our rich history in this topic, I appreciate the updates! It is ALWAYS nice to follow the conversation of folks who rock the space! Thank you for making these sessions possible!

Mel Oluoch: @Paul Rugambwa. You can check the website of Sasakawa Africa Association and also email me privately. We focus on Agriculture Extension in Africa

Srini rajendran: How do I ensure that farmers pay for quality seed when there are less commercialization of the crop in the market and free distribution of seed through various NGOs etc?

Amsalu Ayana Aga 2: For crops with poorly developed seed system such as legumes and oilseeds, seed delivery in small seed packs would greatly strengthen the informal seed system by way of varietal replacement and initial seed replacement

David Rohrbach: Private seed companies live on seed sales; breeders lose their job if these sales do not happen; vs public programs seem to separate breeders from the problem of seed sales. This reduces incentives to assure the delivery system problems are resolved

Denise Mainville: Question to speakers: Given Gary Atlin's comment about the lack of incentive on the part of private/public seed companies to update varieties that are publicly available to farmers, it strikes me that this could be a good opportunity to leverage a Payment for Results initiative which would provide direct incentives to the private (and possibly public) sector actors to prioritize updating the varieties that they make commercially available. AgResults is a multi-donor funded (including BMGF and USAID) initiative testing PforR for similar purposes. While it may be difficult to comment on the potential of PforR without having more background on them, I suggest that they be looked into as an option.

Dr. Safiuddin Ansari: nice presentation

Daniel Abah: Nice presentation. There is severe challenge of access to good quality seed in Nigeria. To what extent are you focusing on Nigeria?

David Rohrbach: Are we simply making greater progress on variety production and less progress on variety delivery?

Louise Sperling: For those interested-- leveraging informal seed traders. Sustainability . 2020 12, 7074. As one speaker said, there is a huge opportunity to really map the informal and formal interfaces. I, at least have never seen this done practically. (would love to collaborate on this)

Dick Tinsley: Thank you for good webinar

Margaret McEwan: And how does that influence the type of seed delivery pathways we design?

Stephen Walsh: Great presentations and comments. Excellent webinar.

Jean Rubyogo: For legume and RTD - the key intervention is to inject critical mass of quality seed of improved varieties in the hands of farmers and the varieties will circulate horizontally in the local market

Jauhar Ali: Why not form thousands of small seed cooperatives with the help of government and funding agencies especially in Africa?

Md. Mustafizur Rahman: Hello, Everybody, I'm Mustafizur Rahman from Bangladesh. My major AND most important question is -----Why does most of the seed business fall down or faces loss in their business? There are a lot of proofs regarding this.

Margaret McEwan: @lousie - Srinirajendran is developing a method to look at these interfaces

Emmanuel Monyo: Good point David. In the public cycle breeding is sometimes divorced from dissemination - as there is no incentive to see the product through to farmers hands

J Harte: @Jean Old variety traits are sometimes proven in the specific micro-climates where they are appreciated. A highly strategic action CAN be to leverage the old variety – renew/refresh the parent seed – and flow it back into the system. We did this with rice in Nigeria.

Abdu Beshir: @Margarte, you raised a good point, gender responsive seed system is what requires a close study in different regions.

Amsalu Ayana Aga 2: ISSD Ethiopia programme is using crowdsourcing to create demand for adaptable and farmers preferred varieties, which creates market opportunity for seed producers one one hand and strengthen the informal seed system on the other hand

Md. Mustafizur Rahman: How do we can make the seed system most regenerative and commercialisation and make easy to farmers?

David Rohrbach: Need a wider array of public-private partnerships on reducing risks underlying commercial seed delivery. Most risk reduction in the past has come from seed subsidies for relief.

Jean Rubyogo: very important to link demand/consumers -breeding -seed system

Lauren Good: Louise, agree that we don't have sufficient evidence of the connections between the formal and informal systems. My guess is that we would find it strong in some locations, while almost non-existent in others. It would be nice to see what drives that.

Regina Eddy: @Jean, we agree. We hope rigorous use of Product Profile - such as Nora and Simon outlined - will help facilitate this

Lawrence Kent: @Louise Sperling: thank you for keeping informal seed players on our radar.

Stephen Walsh: @ Amsalu./ Great to hear the example of crowd sourcing as innovative way to promote access to germplasm in a highly decentralized way.

Abdu Beshir: @Amsalu , that is a good example!

Henry Roberts: I am not a seed company, but I am trying to sell seeds in Liberia. Where can I purchase seeds?

Jean Rubyogo: great talks

Dr. Safiuddin Ansari: Thanks

Dr. Safiuddin Ansari: to all

Faith Bartz Tarr: Thanks, great presentations and discussion!

James Woolley: Thanks a lot for this webinar!

Kristin Lobron 2: IFDC working in Northern Ghana in the USAID was able to transform the seed sector but they had to work with all sector actors

Lealem Amenu: Thank you

Denise Mainville: Thanks to speakers and commentators...

Lucy Asare-Baah: Thank you all

Jauhar Ali: Thanks to al

Jean Markendy CHARLES 2: Thank you!

Garold LaRue: Thank you,

Domisian Mabula: Thanks for this webinar

Tom van Mourik: Thanks everyone!

Jean Rubyogo: have a look at PABR WEBSITE

Lana Howard: Thank you!

Abdu Beshir: Thanks and cheers!

Stephen Walsh: Thanks to all!!

Modom Banla: Thank you for this webinar

Amsalu Ayana Aga 2: @Stephen: Yes, the CS is quite effective in promoting varieties rapidly and widely

Jauhar Ali: Thanks to all

Kristin Lobron 2: Thanks for reat webinar

Lauren Good: Thank you, nice event

Margaret McEwan: Mmany thank

Michael Weinraub: Thank you all!

Marijn Voorhaar: Thanks everyone

Ian MacNairn: Thanks All

ALEXANDRE MARTINS ABDAO PASSOS: Thank you.

Clemen Gehlhar: Great webinar and discussions

shah faruqui: Thank you

Ekin Birol: many thanks

CEDRIC BERNARD: Thank you!

noel chanza: thank u

Chimwemwe Josia: thank you

Oscar Ortiz: Thank you

Michael Quinn: Thanks very much for the opportunity to present to you all.

Mihiretu hundayehu: Thank yoU!

Srini rajendran: Thank you so much. wonderful presentation and lots of valuable information shared here.

BOJA RAJ.S: Thank you

Srini rajendran: At every stages of seed production, we must have different business models to link each actors

Dr. Safiuddin Ansari: Thank you very much Sir

Peter Dreher : thank you for invitation

CARLOS JIMENEZ: Thank you

Md. Mustafizur Rahman: Thanks a lot everybody of the webnair. I collected the discussion materials through downloading.

lafaee enoka: many thanks to the organisers and participants!