# SweetGAINS SpeedBreed and Seed Community of Practice (CoP) West Africa virtual meeting

**DATES:**
**27 May, 29 May, 1 June, 3 June and 5 June | 10:00-12:00 GMT all days**

AUGUST
2020

CIP INTERNATIONAL POTATO CENTER CGIAR

CORAF

CGIAR RESEARCH PROGRAM ON Roots, Tubers and Bananas

Sweet GAINS

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# Acknowledgements

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This work is undertaken as part of the CGIAR Research Program on Roots, Tubers and Bananas (RTB). Funding was provided by the SweetGAINS project led by the International Potato Center (CIP). RTB is a partnership collaboration led by the CIP and implemented jointly with Bioversity International, the International Center for Tropical Agriculture (CIAT), the International Institute of Tropical Agriculture (IITA), and the Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), that includes a growing number of research and development partners. RTB brings together research on its mandate crops: bananas and plantains, cassava, potato, sweetpotato, yams, and minor roots and tubers, to improve nutrition and food security and foster greater gender equity especially among some of the world's poorest and most vulnerable populations.

https://www.rtb.cgiar.org/

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# Acronyms

| | |
|---|---|
| BMGF | Bill & Melinda Gates Foundation |
| CAADP | Comprehensive Africa Agriculture Development Programme |
| CIP | International Potato Center |
| CoP | Community of Practice |
| CORAF | West and Central African Council for Agricultural Research and Development |
| CRI | Crops Research Institute |
| CSIR | The Council for Scientific and Industrial Research |
| DVM | Decentralized Vine Multiplier |
| ECOWAS | The Economic Community of West African States |
| EGS | Early Generation Seed |
| EiB | Excellence in Breeding |
| ICP-MS | Inductively Coupled Plasma–Mass Spectrometry |
| INERA | Institut de l'Environnement et du Recherches Agricoles de Burkina Faso |
| IPR | Intellectual Property Rights |
| MEL | Monitoring, Evaluation and Learning |
| NaCRRI | National Agricultural Crop Resources Research Institute |
| NARI | National Agricultural Research Institute |
| NCoS | National Center of Specialisation |
| NGO | Non-Governmental Organization |
| NIR | Near Infrared spectroscopy |
| OFSP | Orange-Fleshed Sweetpotato |
| QA | Quality Assurance |
| QC | Quality Control |
| RAB | Rwanda Agriculture and Animal Resources Development Board |
| RCoE | Regional Center of Excellence |
| RTB | Roots, Tubers and Bananas |
| SAH | Semi Autotrophic Hydroponics |
| SoPs | Standard Operating Procedures |
| SPBase | Sweetpotato Base |
| SSA | Sub-Saharan Africa |
| SweetGAINS | Genetic Advances and Innovative Seed Systems for Sweetpotato |
| TARI | Tanzania Agricultural Research Institute |
| TPEs | Target Population of Environments |
| WP | Work Package |

# Background of Genetic Advances and Innovative Seed Systems for Sweetpotato (SweetGAINS) project

SweetGAINS project is an ambitious three-year investment designed to modernize sweetpotato breeding in Africa. SweetGAINS project is improving breeding operations and methodologies, ensuring integration between breeding outputs and early generation seed availability, and strengthening the SpeedBreeders and Seed Community of Practice (CoP) by 2022.

SweetGAINS uses a gender responsive, market-driven approach to sweetpotato breeding and seed systems, which results in improved nutrition and diversified diets for both urban and rural people. At national and regional levels, the project is further strengthening sweetpotato breeding efforts in Africa to develop nutritious and highly productive varieties. These varieties carry preferred traits by farmers and consumers, replace less productive varieties, and achieve high adoption rates among small-scale farmers. SweetGAINS means access to new orange-fleshed sweetpotato (OFSP) and non-OFSP sweetpotato varieties. For urban consumer groups, including schools and hospitals, the program is providing a more reliable and cheaper supply of more nutritious sweetpotato. Moreover, all major sweetpotato producing Sub-Saharan African (SSA) countries are part of the Scaling-up Nutrition movement, and this project aligns with national commitments to delivering more nutritious foods to their populations. The project is incorporating gender-responsive research to better target the priorities of women, men, and youth as agricultural consumers, producers, processors and traders in Africa.

Ultimately, the vision of success for SweetGAINS is to increase access to improved sweetpotato varieties and enhance seed delivery systems through streamlined, gender responsive, well-managed sweetpotato breeding programs across Africa. In doing so, SweetGAINS is not only meeting the needs of rural and urban consumers for more affordable, healthy food, but also transforming the lives of small-scale farming families by providing improved, high-yielding, nutritious sweetpotato varieties.

# Executive summary

The SweetGAINS SpeedBreed and Seed CoP - West Africa virtual meeting was held on 27 and 29 May and 1, 3 and 5 June 2020. The meeting aimed to ensure the continuing development and dissemination of nutritious and productive sweetpotato varieties for West Africa. The meetings were organized by CIP under the SweetGAINS project and aligned to CORAF's priority regional programs like the National Centers of Specialization [NCoS] and Regional Centers of Excellence [RCoE]). The meeting objectives were:

- To work towards building a functioning regional sweetpotato Breeding and Seed CoP in West Africa; and
- To strengthen the capacity of interested partner programs in key elements of breeding excellence, including product profiles, stage gate management, trial design and data management.

The meeting was attended by 33 participants (10 female; 23 male) from several national agricultural programs in the ECOWAS region, including Burkina Faso, Cote d'Ivoire, Ghana, Mali, Nigeria, Senegal, Sierra Leone, and Togo. The participants included breeders, agronomists, economists, social scientists and program managers.

The meeting was officially opened by Dr. Marian Quain speaking on behalf of the Director General of The Council for Scientific and Industrial Research (CSIR), Prof. Victor Agyeman.

### Times and topics of the meetings:

| | |
|---|---|
| 27 May, 9-11 a.m. GMT. | Regional breeding/seed background and potential. |
| 29 May, 9-11 a.m. GMT. | Concepts in breeding/seed excellence. |
| 1 June, 9-11 a.m. GMT. | Concepts in breeding/seed excellence. |
| 3 June, 9-11 a.m. GMT. | Seed systems and dissemination updates and innovations. |
| 5 June, 9-11 a.m. GMT. | Next steps towards a regional vision. |

# **Session 1:** Regional breeding/seed background and potential

| Data and Session name | Time | # | Presentations | Presenter |
|---|---|---|---|---|
| **Wednesday 27th May**<br><br>**Regional Breeding/Seed Intro.** | 10:00 | 1 | Opening statements.<br>Intro to meeting: objectives, structure and process | DG CSIR; K. Some-Inera; R. Ssali -CIP |
| | 10:45 | 2 | CORAF regional vision/strategy (30 min: 20 min presentation and discussion) | A. Jalloh |
| | 11:15 | 3 | Operational excellence in plant breeding | Hugo Campos |
| | 11:45 | 4 | Questions and answers | Sue Canney |
| | 12:00 | | End of session | |

## Welcome remarks and introductions

**Presenter:** Edward Carey

Presentation link

Dr. Edward Carey welcomed participants to the meeting and shared tips for a successful virtual meeting. He gave the overview of the meeting and reviewed the CoP objectives. He also mentioned that the meeting was organized under SweetGAINS, in collaboration with CORAF, and aligned its priority regional programs like the Regional Centers of Excellence.

### Meeting objectives

- To work toward building a functioning regional sweetpotato breeding and seed CoP in West Africa; and
- To strengthen capacity of interested partner programs in key elements of breeding excellence, including product profiles, stage gate management, trial design and data management.

### Specific outputs

- A plan for building and sustaining the regional breeding and seed CoP; and
- Specific plans for capacity strengthening around trial design, data management and methods.

All the meeting presentations and recordings will be archived on the MS Teams West Africa CoP channel.

## Official opening

The meeting was officially opened by Dr. Marian Quain, Deputy Director for CSIR's Crops Research Institute (CSIR-CRI) speaking on behalf of CSIR's DG, Prof. Victor Agyeman. In her remarks, Quain mentioned that CSIR is working to ensure sweetpotato takes center stage in research and that breeding materials are available to end users. CORAF's primary objective is to improve livelihoods in West and Central Africa through sustainable increases in agricultural production and productivity and promoting competitiveness and markets by the critical issues of food and nutrition insecurity, chronic poverty, and youth unemployment. Further, CORAF focuses on coordination and capacity strengthening; scaling technologies and innovations; creating an enabling environment at regional levels for technology flows and increased trade; and knowledge management and learning.

**Dr. Some Koussao** thanked the CoP organizers for the opportunity availed to INERA Burkina Faso to contribute to the CoP meeting.

## West Africa Sweetpotato Breeding and Seed CoP

**Presenter:** Dr. Reuben Ssali, CIP

Presentation link

Dr. Ssali stated that sweetpotato is grown in all countries in West Africa because the crop adapts to different agroclimatic conditions. To meet the user needs and preferences, including low- or non-sweet types, West Africa has been using food science tools to address sweetpotato root quality attributes in its breeding practices. The production constraints vary with each sub-region and for West Africa, weevil infestation and drought tolerance are the main challenges. The sweetpotato support platform for West Africa was established in Ghana in 2009. There have been 29 varieties released in West Africa and 17 are OFSP varieties.

He also mentioned that CIP had established three different sweetpotato support platforms: East and Central Africa, West Africa and Southern Africa. Dr. Ssali the presented the West Africa CoP vision and functions, citing resource mobilization as the key challenge.

### Vision

A sustainable CoP on sweetpotato breeding and seed systems research and development responding to the demands of key stakeholders in West Africa to accelerate development and delivery of improved sweetpotato varieties.

### Functions

- Knowledge sharing;
- Advocacy;
- Mapping and profiling stakeholders; and
- Developing a regional strategy for sweetpotato research for development (R4D).

## CORAF regional vision/strategy

**Presenter:** Dr. Abdulai Jalloh, Director of Research and Innovation, CORAF

Presentation link

Dr. Abdulai Jalloh presented an overview of CORAF's regional vision, strategy and activities for 23 countries under its purview. CORAF has also strengthened the capacity of its NARS partners, one of which is the regional center of specialization attained by CSIR-CRI. CORAF's key achievements are in technology development, post-graduate training of young scientists, and crop yield increases. Significant progress has also been made in harmonizing seed regulations and regional trade.

Dr. Jalloh also stated that regional catalogues of all crop varieties are available and improved varieties can be shared across borders. CORAF has a 10-year strategic plan (2018-2027) which aims to establish CoPs, strengthen the capacities of agricultural research for development institutions, and manage knowledge and planning.

Dr. Jalloh lauded CIP's association with the regional center of excellence for roots and tubers. He reiterated CORAF's full support towards CSIR-CRI as they executed their mandate by leading the region in research for development on roots and tubers.

### Questions and comments for Dr. Jalloh

Q: Where does sweetpotato come in under CORAF's priorities? The strategy is aligned to CAADP and ECOWAS.

A: It is ranked as a priority crop.

Q: How does sweetpotato get into the regional catalog?

A: Sweetpotato is added to the list as a result of national priorities and will include sweetpotato this year.

Q: Can individuals upload technologies for consideration within CORAF's institutions?

A: These can be posted on the meet up platform. They can also be linked up with web TV.

Q: How can specific research institutions link up?

A: Statutorily all can contribute, so please do. At the secretariat, we can draw on all the expertise in the region. This could include videos for Agripreneur TV

Q: Does CORAF has a nutrition sensitive component?

A: Definitely. This was initiated under WAAPP

Q: Are there other commodity specific Communities of Practice in CORAF?

A: All the commodities have a CoP. There is a breeding platform for cereals in Senegal and they have done well by becoming Centers of Excellence.

Q: Does CORAF receive direct contributions from West African countries?

A: A modest sum. When there are grants, countries compete. Varieties come from national institutions in that they are contributing to the regional well-being. We are trying to also develop intellectual property rights within the region as well.

Q: How many countries currently include sweetpotato in top five crops?

A: We are encouraging countries to produce crops that have a comparative advantage. For instance, we know rice, cassava, maize are important across most countries in West Africa but sorghum and millet more important in Sahelian countries.

Q: There was a Nigerian national sweetpotato conference in 2008. Perhaps that needs to be stimulated at the national level

A: That's a great idea. We have a lot of opportunities under the CAADP XP4 platform. There are opportunities for strategic participation. We also want the registrants on the platform to be able to come together as a CoP.

Link to the questionnaire for experts

## Operational excellence in plant breeding

**Presenter:** Dr. Hugo Campos - CIP

Presentation link

In his presentation, Hugo explained the importance of operational excellence. Building genetic gains is very expensive and the investment must be protected. Once created, the genetic gains must be delivered to the smallholder farmer. Campos also mentioned that breeding programs can be full of mistakes and presented a few examples. However, he explained several solutions were available to solve most challenges, such as developing and implementing SoPs, using markers to ensure genetic fidelity and establishing metrics to discard experiments.

### Question and comments

**Ted Carey**: Presently there is a lack of impact at farm level but that doesn't mean that breeding programs are not making progress. It shows weaknesses in the breeding seed linkages and feedback loops.

**Mike Olsen**: We should share this presentation more broadly with many other crop teams through EiB (CGIAR's Excellence in Breeding program).

**Jan Low**: It's great that the cost of fingerprinting is coming down. But one challenge is the timing of getting the results, so you can use them to correct errors. What would it take to get this truly used as a timely tool? In-house capacity?

**Some Koussao**: Interesting Hugo. Yes, we recognize the errors we make along the breeding steps and linking with seed system. Turnover of technicians in NARS can exacerbate the issue. What is easy to do with less capacity?

**Olsen**: From the EiB side we are prioritizing molecular QA/QC for each of the mandate crops. We have had generally quite good results in terms of turnaround time from the vendors we are working with and the outsourcing model has been working well for most crop teams so far. We would like to ensure there is a reliable mechanism for molecular QC for SP, a high priority for EiB in working with your CoP.

The other key technology here is bar code implementation in actual practice at each step in the process of breeding and seed delivery. That can make a huge difference.

**Simon Imoro**: The use of digital tools can help minimize data errors, but human errors are unavoidable. Training and capacity building are essential.

# **Session 2:** Concepts in breeding and seed excellence

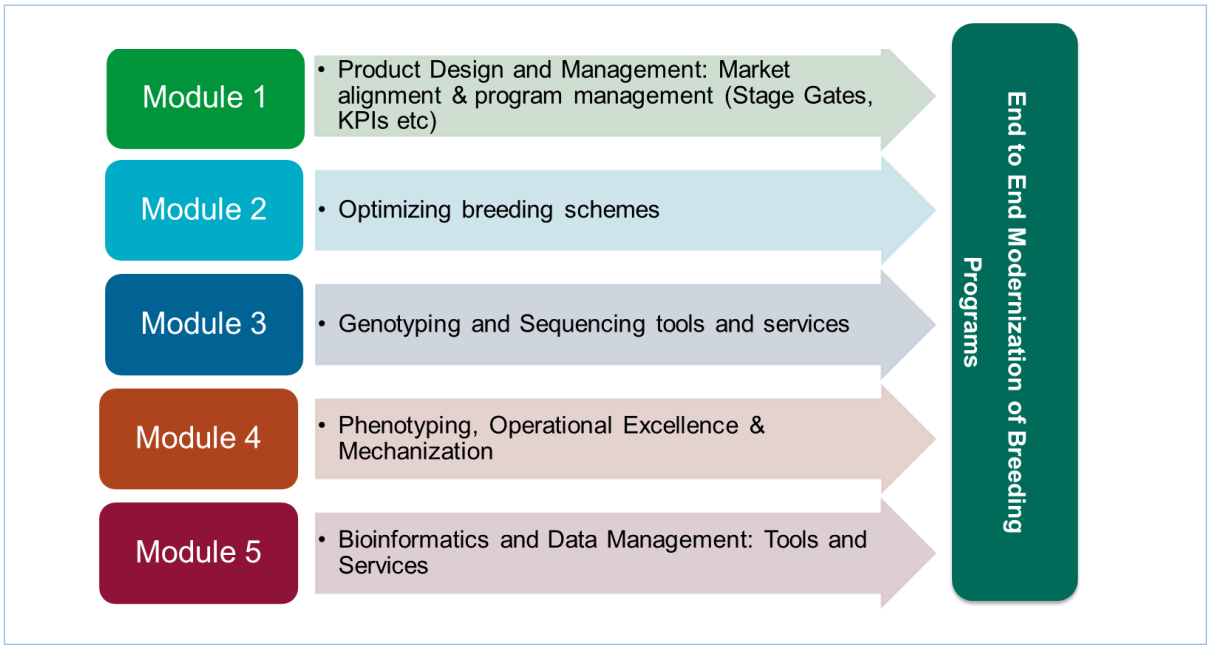
| Data and session name | Time | # | Presentations | Presenter |
|---|---|---|---|---|
| **Friday 29th May**<br><br>**Concepts in breeding/seed excellence** | 10:00 | 1 | Excellence in Breeding, including TPEs, product profile, and stage gates | Bish Das, EiB |
| | 10:30 | 2 | Best approaches to trial design and analysis | Bert de Boeck, CIP |
| | 11:00 | 3 | SweetpotatoBase, a key element of standardized data management | Chris Simoes, BTI |
| | 11:30 | 4 | Break outs in country teams and reporting back to plenary | Sue Canney |
| | 12:00 | | End of session | |

## Excellence in Breeding, including TPEs, product profiles, and stage gates

**Presenter:** Bishwanath Das, EiB

Presentation link

Dr. Bish Das gave a highlight of EiB operations. The objective of the platform is to support the modernization of CGIAR and NARS breeding programs to increase the rate of genetic gain on farmer fields. The program is organized into five areas of expertise, shown here:




The EiB approach provides access to cutting-edge tools, services and best practices, application-oriented training and practical advice resulting in a holistic approach to breeding program modernization. The platform gives preference to crops with large potential to ensure food security. These crops include cassava, yam, maize, plantain, sorghum and rice. Secondary crops are important for diversification and these include legumes, bananas, sweetpotato, millet and potato.

## Product profiles and stage gate

**Presenter:** Tawanda Mashonganyika, EiB

Presentation link

Dr. Mashonganyika described product profiles as a description of an individual product (variety) created based on a relevant subset of key traits with minimum trait scores for each key trait required in a new product for a specific market segment. He also mentioned product profiles are demand-led to capture the needs of the whole value chain. Product profiles can be used for initial crosses and subsequent selections, and used to nominate germplasm for advancement on the stage gate process and alignments of resources in the breeding pipeline.

### Questions and comments

**Margaret McEwan**: How does EiB see the linkages into seed delivery?

**Das:** The linkage is with the national programs. They do the last stage evaluation, release and delivery. We, however, need to increase the capacity of some national programs.

**McEwan:** Investment plans - what are the sources of investment?

**Das**: We are using rice as a pilot program in seven national programs. This program is supported by five major donors under crops to end hunger.

**Some Koussao**: Which countries in West Africa have received contributions from EiB?

**Das:** Under the rice program it would be Ghana, Nigeria and Senegal.

**Solomon Afuape**: How does a NARS breeding program tap the expertise of your organization to help modernize or increase its effectiveness?

**Das**: We are focusing on Kenya, Uganda, Ghana, and extending this year to Nigeria. If you are in these countries, please send me an email.

**Ibrahima Zan Doumbia**: I know that EiB is working on some crops in Mali such as cowpea and sorghum. But what about sweetpotato and cassava in Mali?

**Das**: We are not yet working in Mali.

**Jan Low**: Consumer demand represents preferences of today. Yet breeding requires time. So how do you balance breeding to meet current preferences with the needs of tomorrow (e.g., climate change; nutrition density)?

**Tawanda**: Product profile documents can be reviewed to accommodate changes happening in the market.

**Kwadwo Adofo**: If product files will address specific market segments, how then do we tend to ask for replacement of varieties but not complimenting or adding up to the choices in that market segment?

**Tawanda**: Each product profile segment targets a certain market with dominating varieties. We advocate a healthy replacement of a variety and not clogging the market with too many varieties.

**Joseph Onyeka**: EIB is working with the NextGen Cassava program and the National Root Crops Research Institute in Nigeria. Both have benefited from some of their activities.

**McEwan**: Are seed traits considered in product profiles?

**Adofo**: Seed traits will be part of the consideration as far as the needs of the value chain are concerned in product profile.

**Hemant Nitturkar**: Without market demand, there is no life for a product. So, this EiB thinking makes sense. But I see two gaps: How do we balance demand-driven with needs-driven (this is some futuristic vision needed) and how do we cope, for now, with a lack of direct links with seed systems?

**McEwan**: EiB's commitment is to work with the NARIs, but we are disappointed that their interaction with seed delivery is limited.

## Best approaches to trial design and analysis

**Presenter:** Bert De Boeck

Presentation link

De Boeck presented SweetGAINS's project commitment related to biometric and data management:

- Modern statistical design will be used in all field trials supported by SweetGAINS;
- The field layouts of these field trials will be uploaded to SweetpotatoBase (SPBase) within 60 days after planting. The phenotypic data of these field trials will be uploaded to SweetpotatoBase within 60 days after harvest; and
- The phenotypic data resulting from those field trials will be analyzed using linear mixed models.

De Boeck mentioned that these commitments are integrated in the SoPs. Appropriate experimental design helps to control experimental noise. He also advised using RCBD, Alpha design and resolvable row-column as some of the best experimental designs.

### Questions and comments

**Chiedozie Egesi:** I am wondering why field layouts have not been designed with SPBase prior to planting? That way the same design will be directly uploaded to the e-FieldBook for data collection.

**De Boeck:** I had to rush a bit in the end, but this is the idea. When possible to have the trials designed in SPBase, this is the way to go. Some designs still must be integrated in SPBase, so it will not always be possible to do this right now (but they could be uploaded afterwards). In the future, hopefully, all designs can be generated directly in SPBase.

**Low**: Within a given field are there standards (e.g., soil types, range of pH) so that a conclusion that the field itself is homogeneous can be made? I have not seen much characterization of the field itself as standard practice.

**Egesi**: How easy has it been working with the different SweetGAINS teams to maintain consistent field, sampling and trial quality? Do you have a kind of "Task Force mini-CoP" helping to ensure that project-wide this is happening?

**De Boeck:** Yes, we have a mini CoP for breeding data management, to try to move forward on the issues you mention. We have just started with it so there is still quite some work. For instance, we want to implement QA/QC of the field trials (by genotyping) on regular basis but this is not operational yet.

**Nwankwo Innocent:** Will you send protocols for carrying out SweetGAINS trials.

**De Boeck**: The protocols will be sent to all partners in the next weeks. There is already a draft. Please write to Luka if you want to be part of the data management CoP (in Slack) to be kept up to date or if you want to see the draft already.

**Low:** Will quality results from inductively coupled plasma-mass spectometry be integrated as well?

**Imoro**: The Fieldbook app is great, but it still has challenges with regard to handling trials with large entries and generating barcodes with the beta version. How far are you with the Fieldbook app team to integrate these functionalities? We use ODK for collecting our crosses data, it will be good to integrate this in SPBase.

**Afuape:** It's been great learning more about the principles of EiB, product profiling and how to tap into the opportunities CORAF presents.

## SweetpotatoBase, a key element of standardized data management

**Presenter:** Chris Simoes, BTI

Presentation link

Simoes presented different crop databases and an overview of the database, SweetpotatoBase (SPBase) with statistics. He also presented the experimental designs that have been proposed for use in the SweetGAINS project:

- Row-column designs: these are a type of augmented design but with 2-dimensional blocking;
- Augmented p-rep designs: these are p-rep design but also with a 1- or 2-dimensional blocking structure; and
- Resolvable row-column designs: incomplete row-column blocks with superimposed complete rep blocks. The sweetpotato design will be ready by October 2020.

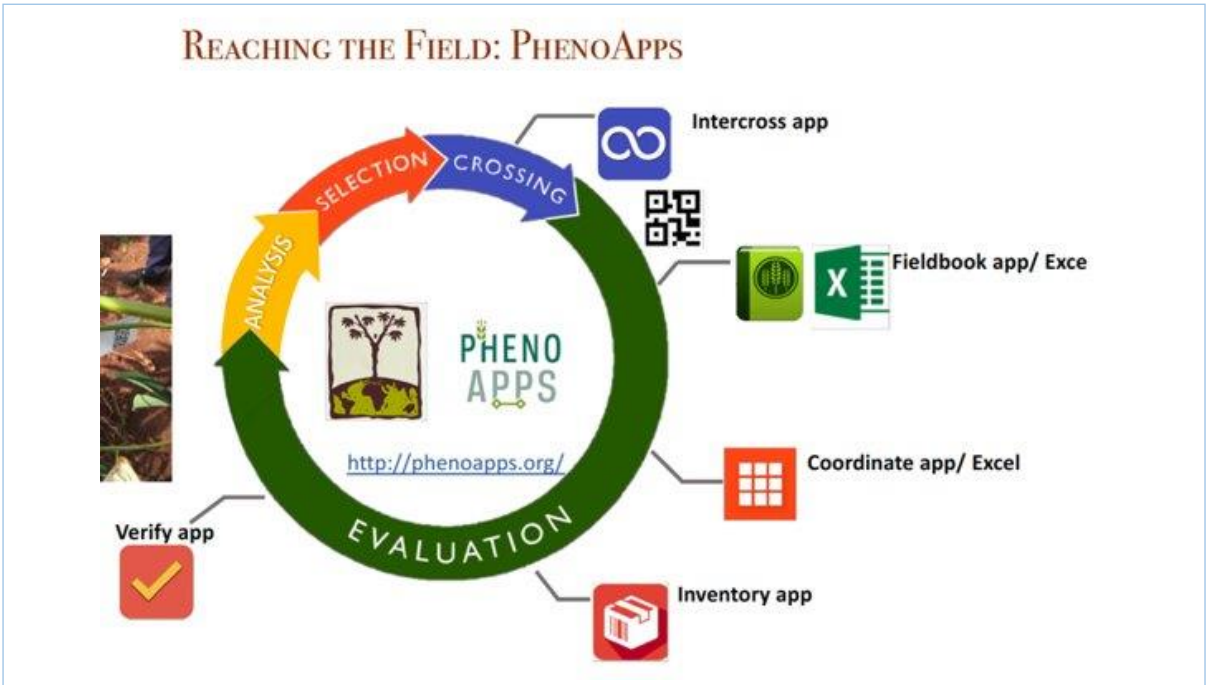



**Figure 1.** An illustration of the digital ecosystem that enables breeders to make crosses, to design trials for evaluating progenies from those crosses, and to collect, curate, analyze and store data.

## Breakout sessions by country teams

**Task:** Prioritize three ways to strengthen breeding and seed systems linkages, including challenges and solutions to those challenges.

**Ghana**

The Ghana national and CIP teams have been used the FieldBook app from 2010-2018. All the varieties have been uploaded except for those in 2019. In 2020 they have been using HIDAP. There is also an issue with barcoding and the teams will need tablets for field work. Funding remains an issue.

**Nigeria**

The team expressed the need to revive the national programs, and to establish in each NARS a multidisciplinary team to work together with SweetGAINS to develop product profiles and target environments. There is also a need to have practical steps on the way forward with this project.

**Burkina Faso and other francophone countries**

The group has six countries members. They discussed the different country experiences with sweetpotato breeding. They also agreed to use the row column design and to support upcoming work in Mali and Benin.

# **Session 3:** Concepts in breeding/seed excellence

| Data and session name | Time | # | Presentations | Presenter |
|---|---|---|---|---|
| **Monday 1th June**<br><br>**Concepts in breeding/seed excellence** | 10:00 | 1 | Feedback from trial design exercise (Nigeria and Burkina Faso) | I. Nwankwo; K. Some |
| | 10:30 | 2 | SOPs for data management | Luka Wanjohi, CIP |
| | 11:00 | 3 | Experience from cassava with an Annual advancement meeting | Chiedozie Egesi, NRCRI |
| | 11:30 | 4 | Plenary | Sue Canney |
| | 12:00 | | End of session | |

## Feedback from trial design exercise (Nigeria and Burkina Faso)

**Presenter:** Innocent Nwankwo

Presentation link

**Innocent Nwankwo**: Nigeria planned to conduct multilocation evaluation of 21 sweetpotato genotypes in eight locations. Twelve of these genotypes were to be received from the sweetpotato support platform for West Africa (in Ghana) for trials to commence between 1 May and 1 June. However, due to COVID-19, it was difficult to get the needed materials from Ghana. As a result, the proposed trials are likely to be postponed if the genotypes are not obtained by 30 June.

### Questions and comments

**Carey**: I am worried about possible under-representation of northern locations in relation to importance of the crop. Proposed data collection scales indicate a need for discussion on research protocols and using SPBase. At present, we use 1 to 9 scales for most attributes. Sensory evaluation of fried roots should be considered, given the importance of this form of use in West Africa.

**Joseph Onyeka**: Good presentation by Innocent. The issue raised by Ted will be considered. The NRCRI team is a multi-disciplinary group.

**Afuape:** The protocol for phenotyping and scoring for SPVD is available and will be used.

**Egesi**: Innocent should update with the Sweetpotato Trait Ontology for any of the traits.

**Edward Nwaogu**: NRCRI also has modern equipment to accommodate all the lab work indicated by Innocent in his presentation.

**Daniel Akansake**: Please consider borders in your plots. Three meters by three meters

will give you three row - plots. So, if there will be borders, then you have only one ridge as a net plot. Right?

**Afuape:** Daniel: I think SweetGAINS will finally come up with a general SoP for the project.

**Maria Andrade**: The plot design of 3m by 3m is so small. Also, there is so much lab work. Is this necessary?

**Afuape**: 3m by 3m gives 30 cuttings per plot. With 21 genotypes across 8 to 10 locations, this should be enough.

**Issaka**: My question is about trials. Following the previous intervention, the trials… are they conducted under irrigation or rainfed? This may raise the issue of drought.

**Carey**: Regarding Innocent's presentation, we must keep clearly in mind the most important variet(ies) we are trying to replace, which should also correspond to our product profile(s).

**Presenter:** Koussao Some

Presentation link

**Some:** Burkina Faso had planned to evaluate 25 sweetpotato genotypes in three locations using row-column design. All genotypes have been collated including 17 from Ghana. Multiplication is ongoing and trial establishment is expected to be completed by 30 June.

### Questions and comments

**Egesi**: Why is Bert helping you determine what traits to measure? Do you have a product profile that you are addressing? What is the role of the farmers, food scientists?

**De Boeck**: I agree Chiedozie. In the SoPs we are working on a "primary set" of traits that should always be measured, to increase the comparability of data sets. But in general, the measured traits should indeed depend on the product profiles.

**Edward Nwaogu**: There is need to harmonize the data between the two studies (Nigeria and Burkina Faso) for comparison's sake

**Jalloh**: How are the materials being multiplied?

**Zan Doumbia**: (speaking to Dr. Koussao) Can I get some of these materials to assess them in regions with rainfall between 500 mm and 900 mm per year.

**Victor Amankwaah**: Could you please throw more light on row column design? Is it the same as RCBD?

**De Boeck**: RCBD is not the same as row-column design. A resolvable row-column design has complete rep blocks like an RCBD, but also has incomplete rows and column blocks. Simplified, it can be analyzed as an RCBD, but it is certainly not the same

**Afuape**: Dr. Koussao, will only three locations be enough to produce sufficient data needed to achieve the objectives of the project?

**Some:** For variety release, candidate varieties must be evaluated in three agroecological zones in Burkina Faso

## SoPs for data management

**Presenter:** Luka Wanjohi

Presentation link

Wanjohi presented the data management practices, workflows, and tools used during the various stages of sweetpotato breeding. He said SPbase and the Fieldbook app are the main tools used with barcode labelling in the various stages of the process: phenotyping, crossing, NIRS, etc. The data management CoP will soon be publishing a SoP document to be used in breeding programs. The draft is in Slack files. He also mentioned intercross will be available in the cloud.

### Questions and comments

**Daniel Akansake**: What happened to HIDAP?

**Wanjohi:** We really want to focus on one digital ecosystem and won't be able to continue to support HIDAP. Also, it does not have the required experimental design and analytical procedures.

**Zan Doumbia**: Please, we need some training about to use these apps for sweetpotato breeding planning, data management and analysis… especially for those who just started working with those crops. I hope CIP can help us.

**Carey:** The Slack group for which I shared the link is a good place to start. Bert and Luka are "on-call" there.

**Imoro**: I just noticed that data coming from Fieldbook to R-Script for curation needs some manual manipulation of the column headers. The R-script uses the short names of the traits, but the data returned by Fieldbook contains the trait CO numbers and short name. Maybe Raul could modify the script to avoid the manual manipulation.

**Akansake**: Great to see people using the handgun for scanning instead of tablet.

**Simon Imoro**: The handgun is used in the NIRS lab, but not in the field.

**McEwan**: Need to highlight that in this process and database… target users are both breeders and seed system practitioners.

**Issaka**: Is there a user manual to support this work?

**Carey**: I am suggesting that the Slack group will be a great place for ongoing consultation.

**Koussao**: It is good you noticed that in West Africa this is the first time for most of the breeding teams to discover this data management process. We hope to replicate these processes, as well as the manual.

## Experience from cassava with an annual advancement meeting

**Presenter:** Chiedozie Egesi, NRCRI

Presentation link

Dr. Egesi explained the product advancement strategy to develop promising varieties of cassava using field breeding data, quality of processed products, participatory evaluation (mother-baby trials), and demand creation trials. He offered the following lessons:

- Meetings must be conducted and ensure that all team members understand the objectives;
- Product advancement task team must be formed in each institution and make sure that the breeders cede power to product managers;
- There should be a data review prior to meeting;
- Decisions should be made at the meeting and not before; and
- Meetings should be held more than once a year.

### Questions and comments

**Some**: How did you do SWOT of advanced materials?

**Egesi:** Mother baby trials were conducted by social scientists and they received feedback independently from the breeders. Farmers in these trials were able to provide input.

**McEwan**: When do you start clean up and multiplication, pre-release? And if not released, then what is the next step?

**Egesi**: If you have good resistance, then you start rapid propagation using semi-autotrophic hydroponic systems (SAH), so they have plenty of material in the pipeline!

**McEwan**: During advancement meetings, when considering power relations, how are gender issues addressed? Also, is a seed system group involved?

**Egesi**: Yes, seed system people are involved in the demo trials near centers of utilization. With respect to power and gender, gender responsive breeding is embedded in the project. Regarding power, the food scientist is one whose power is given additional weight because this tends to have been ignored in the past.

**Nwaogu**: What is the role of soil scientist in the program?

**Egesi:** There really needs to be a stronger role for soil scientists perhaps with respect to site assessment and agronomic practices.

**van Mourik**: What are the tricot results with cassava?

**Egesi**: NextGen experience is ongoing. The challenge is to harmonize this experience with the country variety release procedures. Questions will be with respect to relative cost effectiveness of the approach.

**van Mourik**: Please share these results

**Ssali**: Did the selection index account for the economic value of traits in any way?

**Egesi**: This question came up before, and we are dealing with it. The index works pretty well given it is difficult to economically weight across regions and households.

**McEwan**: What is cost of tricot compared to mother and baby trials? I hope that a seed system specialist is also included in your advancement meeting.

**Carey**: Very interesting that the amount of materials for advanced testing coming out of the pipeline that are clear winners in all aspects.

**Sue Canney**: Is there any consideration of household harvesting processing and cleaning time? Lessening mostly women work?

**Paul Demo**: Thanks for great presentation. I just want to know if, with the consumer/industry demand driven approach, industry level processing tests have been considered.

**Egesi**: Yes, they conduct the trials and make assessments based on their needs. We only backstop. They tell us which are their selections and why.

**Mark Tokula**: what role do seed system specialists play in the product advancement meeting, and do they participate in the SWOT analysis?

**Egesi** : Yes, the seed systems specialists are part of the breeding program and their input is essential

**McEwan**: Good that your approach is gender responsive.... so, do you have examples of how something has changed with the new approach?

**Egesi**: We have had a lot of changes in terms of identifying the traits that women processors (gari) called important, how to translate them into what the breeder can measure and incorporate into the selection index.

**Erna Abidin**: We find something interesting with the gari/fufu product profile. In Ghana, through the CIP-led 'Jumpstarting OFSP in West Africa thru diversified markets' (JS), one private company began to produce 'gari', 1:1 with cassava: apomuden OFSP (low dry matter). With backstopping from Tawanda (of CIP) and Antonio, this gari from Ghana has good nutritional value. We plan to develop it for market opportunities soon. From my point of view, there is a need to think of this breeding CoP in West Africa to be an opportunity to create product profiles in the area of research and development with IITA and CIP.

# **Session 4:** Strengthening breeding and seed system linkages

| Data and Session name | Time | # | Presentations | Presenter |
|---|---|---|---|---|
| **Wednesday 3rd June**<br><br>**Strengthening breeding and seed system linkages** | 10:00 | | Re-cap | Sue Canney |
| | 10:05 | 1 | Sweetpotato Digital Catalogue & how to upload information on newly released varieties http://research.cip.cgiar.org/sweetpotato-catalog/cip_sp_catalogue/ | Luka Wanjohi |
| | 10:20 | 2 | Country updates on current EGS capacities and linkages to seed value chain actors (Ghana, Nigeria, Burkina Faso, Mali, Cote d'Ivoire, Togo, Senegal and Sierra Leone) | Country representatives |
| | 10:35 | 3 | How do we strengthen breeding and seed system linkages? | Break out groups (Sue Canney) |
| | 11:00 | 4 | Plenary feedback | Country participants (tbd) |
| | 11:15 | 5 | Scaling RTB crop variety validation and diffusion using farmer citizen science (TRICOT) in Ghana | T. van Mourik (CIP) |
| | 11:45 | 5 | Wrap up | Sue Canney and M. McEwan |
| | 12:00 | | End of session | |

## Sweetpotato Digital Catalogue

**Presenter:** Luka Wanjohi

Presentation link

Wanjohi reviewed the sweetpotato digital catalogue explaining how to photograph, record and upload information of newly-released varieties. He also explained the characteristics used in the digital catalogue.

### Questions and comments

**Hugo Campos**: Which West African country has the highest number of catalog searches per year?

**Wanjohi**: I will check and update.

**Erna Abidin**: The sweetpotato catalogue is excellent and according to Sweetpotato descriptors (IBPGR 1981. Genetic resources of sweetpotato. AGP: IBPGR/80/63, Rome, Italy). However, I might have missed on above ground level sweetpotato descriptors. I do not see it in detail as necessary to be used in the selection to keep trueness to type.

**Afuape**: Some of the descriptors in your catalogue aren't captured in the IBPGR manual often used by breeders. Is CIP gradually improving on the IBPGR descriptor manual? And if yes, does it mean we can shift to the current CIP one or what do you suggest?

**Nwaogu**: Why is there no mention of disease resistance as part of the attributes for consideration in the catalogue.

**Wanjohi:** There is disease resistance in the catalog. Just not covered in the presentation.

**Jalloh**: Are you using updated descriptors?

**Wanjohi**: Yes.

**Egesi:** Do you collect foliar characteristics?

**Wanjohi**: Yes, you will find all of this on the catalog.

## Country updates on current EGS capacities and linkages to seed value chain actors.

Country updates link

**Presenter:** Margaret McEwan

Presentation link

McEwen gave an in-depth synthesis of the data sent on current EGS capacities and linkages to the seed value chain actors from Ghana, Nigeria, Burkina Faso, Mali and Cote D'Ivoire. Her presentation revealed high supply (20,000 cuttings) of pre-basic seed in Ghana compared to other countries through the second quarter of 2020. The presentation also showed significant demand for pre-basic seed by private enterprises.

### Questions and comments

**Low**: Are the orders for Nigeria in bundles or number of cuttings?

**Afuape**: Good question, Jan. I think it's in bundles (100 cuttings). In December 2019, I helped a big farm to purchase 3,000 cuttings as 30 bundles.

**Amankwaah**: Some of the varieties in Ghana being cleaned are advance breeding lines about to be released.

**Campos**: Going forward, what would it take to increase the number of sales to individual farmers which, on average, are very small now. And what about the rate of sales increase for West Africa over the years?

**Egesi**: EGS should not be sold to farmers, but rather to decentralized vine multipliers (DVMs).

**Breakout room**

## How to strengthen breeding and seed systems linkages, challenges and solutions to the challenges

### Questions

1. Discuss and prioritize three ways to strengthen breeding and seed system linkages in your countries.
2. What are the challenges to implementing these ideas?
3. What solutions can you identify to address these challenges?

Some of the practices that can strengthen breeding and seed system linkages

1. Need the breeders to incorporate end user traits and to incorporate them into new varieties. The right variety is the 'queen.'
2. Involve stakeholders (DVMs) in the late breeding stages for hosting trials and on-farm trials.
3. Enforce seed standards.

4. Train seed system players.
5. Create awareness on available recent releases and provide training and certification.
6. Market the products by creating demand as a 'stage-gated' system for variety release and clean up. This will allow multiplication ahead of release and ensure seed system players contribute to project profile development (stage gate 0), so that they are sensitizing the market ahead of time.
7. Agree on what to sell.
8. Communicate packages that follow every release.

Challenges to implementing these practices

1. Lack of funding for training and communication packages. These items are typically not part of breeding budgets. Advocate for more funding from institutions.
2. Seed companies/vine multipliers are not contributing to the development and marketing of varieties.
3. Currently, most of the seed inspectors are more aligned with grain crops and will need to develop capacity for handling RTB crops.

Solutions to the challenges

1. Breeding projects need to include funds to market the varieties:

- Advocate for more funding from institutes and external institutions.
- Re-invest funds from the sale of vines into marketing campaigns.

2. Define workflows in detail across the stakeholders.
3. Rather than work on a specific crop, stakeholders should broaden up and collaborate with colleagues working on other crops. For example, joint campaigns with other crop varieties to announce new releases at the same time.

## Scaling RTB crop variety validation and diffusion using farmer citizen science (tricot) in Ghana

**Presenter:** Thomas Van Mourik

Dr. Thomas van Mourik shared an in-depth view of the tricot approach and how measuring readiness to scale up can fit into the ranking based on this large-scale trialing of three randomized varieties across multiple farmers sites. A system that embraces environmental variability through large data sets more than controlling replicability on each site.

### Questions and comments

**McEwan**: How does the cost compare to use of demos, M&B trials, etc.?

**Low**: Would a typical release committee accept results of an approach based on ranking, without actual measurement of yields?

**Joseph Onyeka**: Do we have example of any country where tricot result has been considered for variety release of any crop?

**McEwan**: (to Chiedozie Egesi) Has next generation cassava used the AbacusBio method of assigning economic value to individual traits?

**Egesi**: Yes, it is a work in progress. Being piloted in Nigeria and Uganda.

**Low**: On consumer testing, are you just testing boiled/steamed roots or also fried?

**Ssali:** Consumer testing was with boiled roots so far.

**Afuape**: The increasing preference for sweet sweetpotatoes has been observed in Nigeria. This calls for a robust survey to understand how preferences have shifted or are shifting across important culinary and fresh root consumption traits.

**Egesi**: An opportunity is being missed by NARS scientists who don't give priority attention to sweetpotato fries. I think more attention should be given here. And is there a distinction between fried sweetpotato chips and fries?

**McEwan**: (To Egesi) We love sweetpotato fries - Golden Fries, the healthier alternative.

**Afuape**: If you will be using about 500 farmers for tricot, and we need a relatively lower number of farmers for on-farm trials, do you think tricot will be cheaper than on-farm? Cost will be a serious issue with NARIs.

**Low**: So, in the protocol, each farmer just plants the way they normally do. No standardization, correct?

**Ssali**: Yes, farmers plant in their normal way emphasis is on keeping the identity of the varieties

**Carey**: The selection of genotypes in the project was mainly already-released varieties to provide additional feedback and refine recommendation domains and understanding of released varieties

**Low:** Could we let farmers have the three varieties with the proposed names (instead of A, B, C). Once something is out in the real world, it can stay there. It would be good to have it with its true name. Otherwise, we are going to have a myriad set of local names or sweetpotatoes called A, for instance, across the area.

**Ssali**: The ABC naming is for simplicity versus breeding code. Immediately after data collection every farmer is given a report with name.

**Afuape**: To everyone, how do we capture into country seed data the volume of seeds produced by big sweetpotato farms for their own seed use without selling as DVMs do?

**McEwan**: That's a good question. Vertically integrated SP value chains will be increasingly important. They should source from EGS. But why do we need to capture the seed volumes?

# **Session 5:** Next steps towards a regional vision

| Data and Session name | Time | # | Presentations | Presenter |
|---|---|---|---|---|
| **Friday 5th June**<br><br>**Next steps towards a regional vision** | 10:00 | 1 | Global perspectives and next steps | Simon Heck, CIP |
| | 10:30 | 2 | Regional perspective on way forward to foster sweetpotato for wealth and health | A. Jalloh, CORAF |
| | 11:00 | 3 | Opportunities and next steps for regional strategy | Plenary and Sue Canney |
| | 11:30 | 4 | How do we see the COP going forward with ownership by WA and other institutions?<br><br>Evaluation | Plenary<br>Sue<br>Luka Wanjohi |
| | 12:00 | | Close of program | |

## Global perspectives and next steps

**Presenter:** Simon Heck

Presentation link

Participants were given an overview of the global program, including strategic priorities in West Africa and plans for going forward. Heck said work in West Africa is so far good, but the region is still lagging in East and Southern Africa. He mentioned that sweetpotato varieties need to become more competitive in agri-food systems, starting by increasing genetic gain in farmers' fields. Delivery systems need to be more cost-effective and better targeted for impact, and the evidence base needs to be more complete and extended to outcomes and impacts. He also emphasized the need to strengthen engagement with NARS. He also mentioned that the One CGIAR process will accelerate change.

### Questions and comments

**Olsen**: Has sweetpotato engaged with AbacusBio and if yes, what were the outcomes?

**Campos:** Yes, a project is underway in Uganda.

**McEwan**: Breeders can only focus on 5-6 traits, but the AbacusBIO surveys come up with many more traits from users along the chain. The added value of AbacusBIO is putting an economic value on traits from a seed trait perspective. These traits rarely reach the top 5-6 priorities.

What is the uptake of the purple fleshed varieties in Ghana and Burkina Faso?
**Afuape:** CIP-SSA has done wonderfully in improving breeding strategies through speed-breeding strategies and EiB. However, a lot remains to be done in working with NARIs in West Africa to adopt and use molecular/genomic tools to bring the gains of the genomic tools for sweetpotato to the NARI's level.

Considering the map of West Africa… very large and important sweetpotato-producing belts lie in the savannah regions where drought is more common. Is it possible for CIP-SSA and West Africa to jointly develop grant proposals to target this? Doing it as a sub-region may be more effective than doing it individually.

**Nitturkar**: In what areas do we feel CIP can increase cooperation in Nigeria? There is a team now in place in Nigeria implementing a new project called DDBIO and we can follow up on the leads deliberated through this platform. The key need is to increase the profile and market demand for OFSP. How can we achieve this? This demand will flow up to what the seed system and breeding teams are doing.

**Afuape** (to Nitturkar): My belief is that Nigeria needs a well-detailed product profiling and a stronger breeding program than we have now. Stronger in terms of fund support. Nigeria is huge with over 250 different ethnic nationalities and food cultures. How to mobilize support for breeding is critical to keep bringing out varieties that can drive the seed system and adoption.

**Tokula**: Seed system development and scaling out for wider adoption of improved varieties and economic empowerment of farmers is important for CIP intervention in Nigeria

## Regional perspective on way forward to foster sweetpotato for wealth and health

**Presenter:** Abudulai Jalloh

Presentation link

Dr. Jalloh focused on regional perspectives as a way foster sweetpotato for wealth and health. He stated the three main activity pillars: 1) establishing a CoP on scaling technologies and innovations for sustainable impact; 2) capacity strengthening of agricultural research for development; and 3) knowledge management and foresight.

He also mentioned potential areas of convergence for capacity strengthening in sweetpotato improvement and agronomy, Regional Centers of Excellence, variety development, registration, release and scaling, improving seed systems, youth employment, nutrition sensitive agriculture, private sector and value chain development and policy environment for scaling of sweetpotato technologies and innovations.

### Questions and comments

**McEwan**: AbacusBIO is involved with cassava in Nigeria?

**Campos**: Yes, IITA is running a cassava-based project with AbacusBIO in Nigeria.

**McEwan**: When is the next CORAF review and planning meeting, and who is this open to? Can we report back from this CoP to that meeting? Is it possible to have a sweetpotato session in the next CORAF meeting?

**Jalloh:** Yes, CIP will be invited.

**McEwan**: For dry areas we have the root-based technology to conserve and multiply planting material, Triple S (storage in sand and sprouting).

**Afuape** (to Dr. Jalloh): Having you is a great opportunity. Many technologies in sweetpotato genomics can help develop improved varieties. But getting the gains to NARIs in West Africa for application has not been done. Can CORAF be involved in this?

**Marian Quain**: During the WAAPP project, Ghana received much support and is well-positioned to play a key role as a regional center of excellence, and we hope more support will be received to serve the subregion.

**Low**: Actually, in Ghana, OFSP is in the national nutrition policy and in 2019 was added to the President's priority Planting for Jobs program. In Nigeria, it is also a key crop in the Nutrition Policy. Also, in Nigeria in the Agriculture Sector, biofortification is the number one strategic priority.

Breakouts

## How do we see the CoP going forward with ownership by West Africa and other institutions?

Group 1

The main priority: Mapping channels and markets for OFSP.

Group leader: Edward Nwaogu

CoP meeting: Bi-monthly

Group 2

The main priority: Raising funds for the CoP

Group leader: Marian Quian

CoP meeting: Bi-monthly

Group 3

The main priority: Forming linkages and strengthening linkages. Developing a proposal for the CoP.

Group leader: Some Koussao

CoP meeting: Monthly

### Questions and comments

**Kwadwo Adofo**: Recommends that Marian should oversee the CoP from Ghana as a focal point.

**Ted Carey and Marian Quain**: Frequency of meetings suggested on a monthly basis with CoP on a bi-monthly basis.

**Reuben Ssali**: We can break topics to focus on specifically on ideas like experimental design, SPbase for data management, and SoPs. We also need to run training webinars.

**Ted Carey**: There are many aspects of best practices that we can continue to address on a regular basis, even though the Slack channel is where we can get advice on experimental design and other topics.

**Reuben Ssali**: Regarding germplasm distribution, there is an important need to make sure that we understand and comply with requirements for exchange

### Ways forward

| | Action | Responsible | Deadline |
|---|---|---|---|
| **1** | Report of the CoP posted in MsTeams | Bernice | 1st week of July |
| **2** | Implement best practices shared in the CoP virtual meeting | Everyone | Ongoing |
| **3** | Organize bi-monthly CoP meetings | Marian Quain, Some, Reuben and Ted Carey | Ongoing |
| **4** | Participate and contribute to ongoing CoP activities | Institutional champions & everyone | Ongoing |

## Meeting evaluation and wrap up of CoP meeting

**Presenter:** Luka Wanjohi

The meeting evaluation link was shared with all participants. Participation certificates would be sent to those who completed the evaluation (see below)

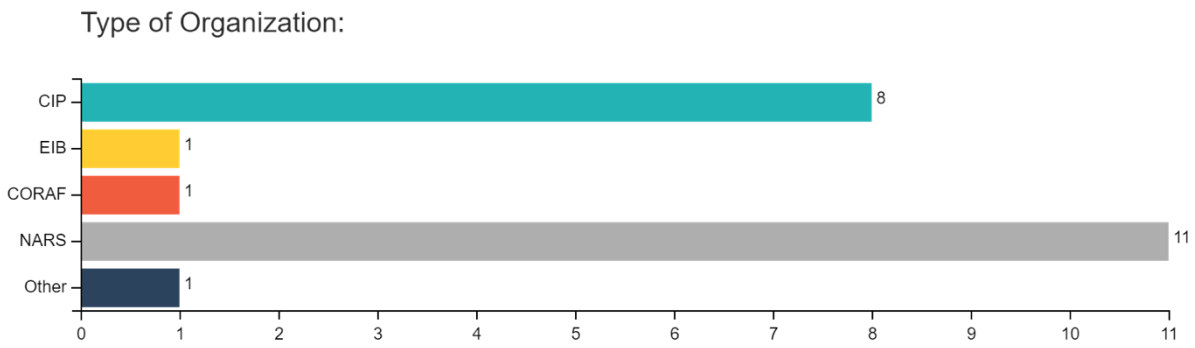
# Annexes

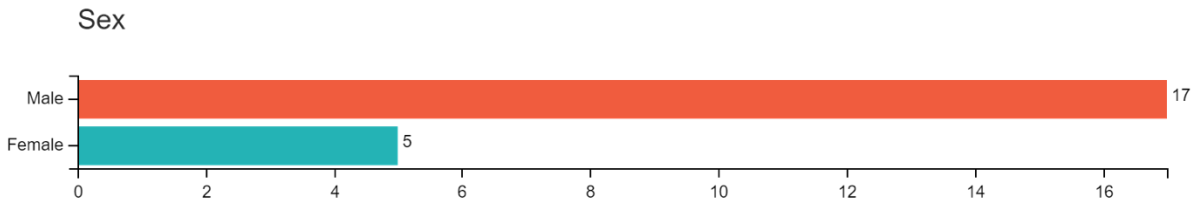
## Participants list

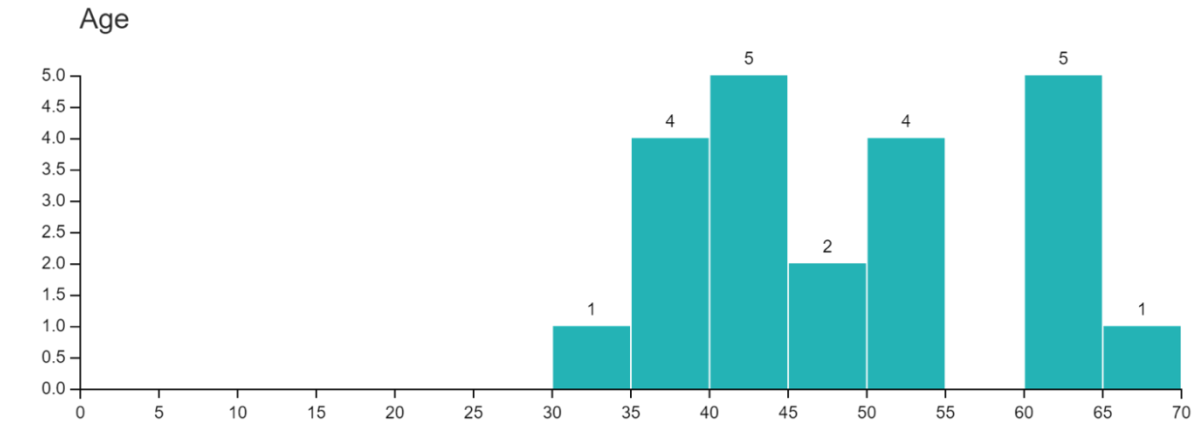
| No. | First Name | Last Name | Institute | Post | Country |
|---|---|---|---|---|---|
| 1 | Abdulai | Jalloh | CORAF/WECARD | | |
| 2 | Bert | De Boeck | CIP | Lima | Peru |
| 3 | Bish | Das | EiB | Nairobi | Kenya |
| 4 | Chiedozie | Egesi | Cornell/IITA/ | Ibadan | Nigeria |
| 5 | Daniel | Akansake | CIP | Nyankpala | Ghana |
| 6 | Edward | Nwaogu | NRCRI | Umudike | Nigeria |
| 7 | Erna | Abidin | Reputed A4D NGO | Kumai | Ghana |
| 8 | Hemant | Nitturkar | CIP | Ibadan | Nigeria |
| 9 | Hugo | Campos | CIP | Lima | Peru |
| 10 | Innocent | Nwankwo | NRCRI | Umudike | Nigeria |
| 11 | Issaka | AMADOU | CORAF | | |
| 12 | Jan | Low | CIP | Nairobi | Kenya |
| 13 | Jeanne | Nikiema | INERA | Ouagadougou | Burkina Faso |
| 14 | Jebeh | Samba | SLARI | Njala | Sierre Leone |
| 15 | Jolien | Swanckaert | International Potato Center | Kampala | Uganda |
| 16 | Joseph | Awoodzie | CSIR-CRI | Kumasi | Ghana |
| 17 | Joseph | Onyeka | NRCRI | Umudike | Nigeria |
| 18 | Koussao | Some | INERA-Kamboinse | Ouagadougou | Burkina Fasao |
| 19 | Kwadwo | Adofo | CSIR-CRI | Kumasi | Ghana |
| 20 | Luka | Wanjohi | CIP | Nairobi | Kenya |
| 21 | Maiga | Mariame | CORAF | | |
| 22 | Margaret | McEwan | CIP | Nairobi | Kenya |
| 23 | Maria | Andrade | CIP | Maputo | Mozambique |
| 24 | Marian | Quain | CSIR-CRI | Kumasi | Ghana |
| 25 | Mark | Tokula | NRCRI | Umudike | Nigeria |
| 26 | Mike | Olson | EiB | Nairobi | Kenya |
| 27 | Reuben | Ssali | CIP | Kumasi | Ghana |
| 28 | Simon | Imoro | CIP | Kumasi | Ghana |
| 29 | Simon | Heck | CIP | Nairobi | Kenya |
| 30 | Solomon | Afuape | NRCRI | Iresi | Nigeria |
| 31 | Tawanda | Mashonganyika | EiB | Nairobi | Kenya |
| 32 | Ted | Carey | CIP | Kumasi | Ghana |
| 33 | Tom | Van Mourik | CIP | Accra | Ghana |
| 34 | Victor | Amankwaah | CSIR-CRI | Kumasi | Ghana |

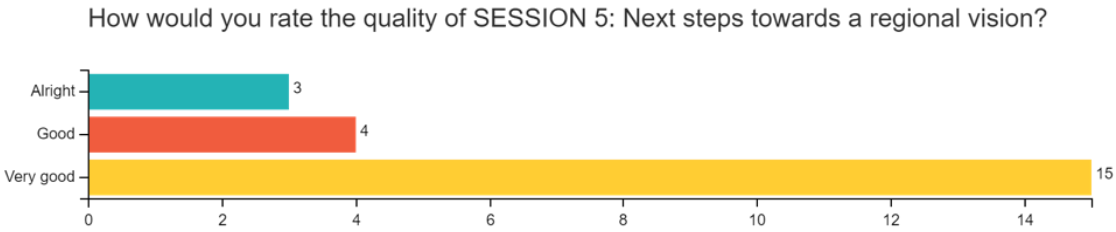
## Meeting evaluation

### Demographics

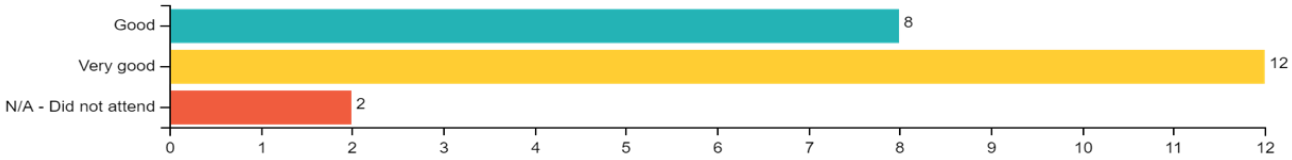


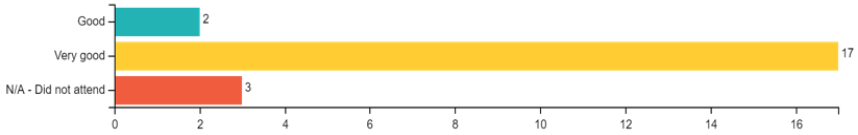



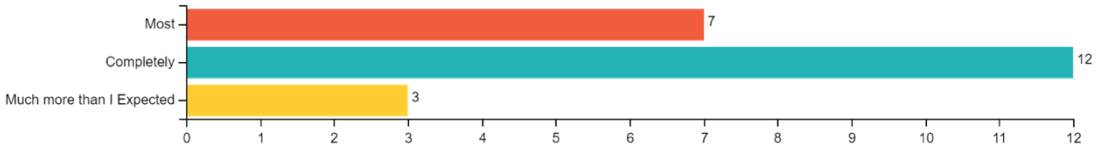
How would you rate the quality of SESSION 1: Regional Breeding/ Seed Intro. ?



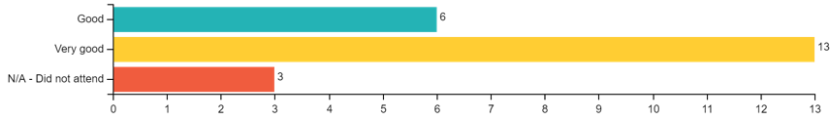

How would you rate the quality of SESSION 2: Concepts in breeding/ seed excellence (TPE/Product Profiles/Stage Gate/Trial Design/SPBase)?



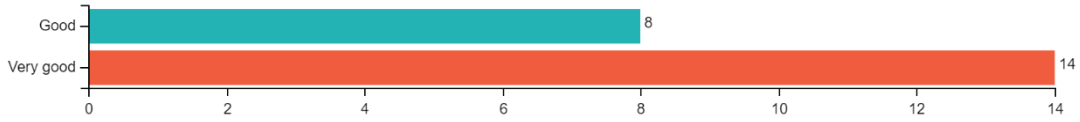

Did the meeting match your expectations?



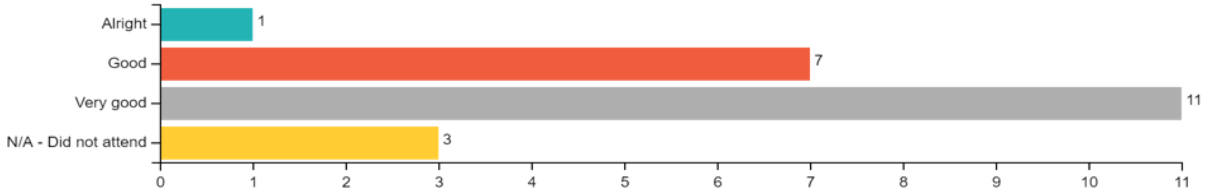

How would you rate the quality of SESSION 3: Concepts in breeding/ seed excellence(Feedback session/SOPs/Cassava Annual Meeting Advancement)?

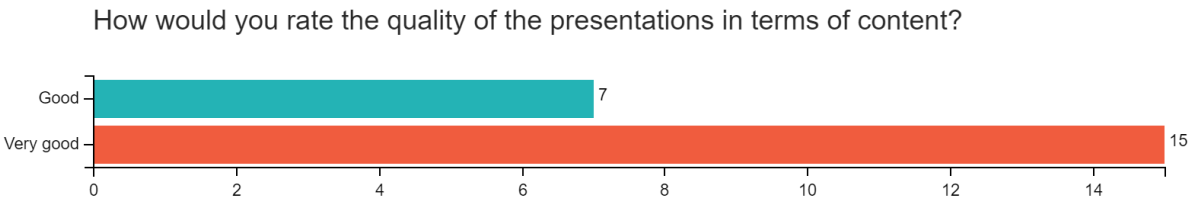



How would you rate the meeting in terms of organization (logistics, communication)?




How would you rate the quality of SESSION 4: Strengthening breeding and seed system linkages?





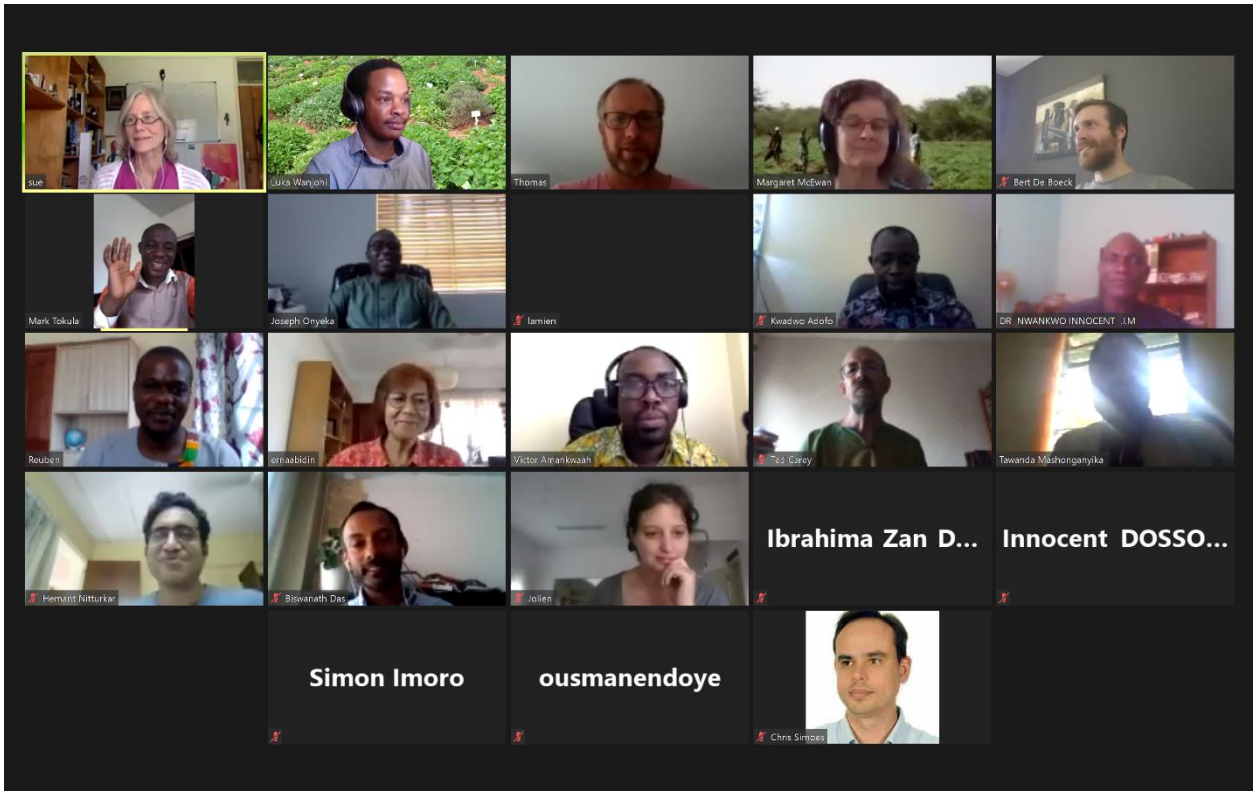




**Figure 2.** Snapshot of the web conference participants

## Feedback on the meeting and presentations

### What are your three main takeaways?

- The benefits of the CoP and taking it forward.
- How it is important to have a functional CoP.
- CoP is critical to ensure the future of sweetpotato.
- Increased my awareness about West Africa sweetpotato Breeding and Seed Community.
- An active SP CoP exists in West Africa that needs to be strengthened.
- Functioning regional sweetpotato Breeding and Seed Community of Practice in West Africa.
- General understanding of the activities carried out by CIP in West Africa and the identification of research priorities.
- Look for way to keep this CoP alive and vibrant.

- It is necessary to have enough capacity to rule the CoP.
- The need to harmonize the breeding programs across the West African sub-region.
- Active collaborations among scientists across the west African sub-region are important.
- STRONG INTEREST in maintaining this CoP by NARs.
- Being helped is good but helping yourself is very important. The West Africa CoP should work well by West Africa effort.
- There is avenue for collaboration between CORAF and CIP.
- Bimonthly meetings of the CoP.
- Need for continued support for the West African platform.

### CORAF

- As a CoP/NARIs can benefit from CORAF activities.
- Stronger coordination required between the various initiatives - CIP, CORAF, national priorities.
- CORAF is supportive but not a potential source of funds; could they help encourage governments to invest?
- That huge opportunities abound within CORAF and such regional bodies to tap for effective sweetpotato activities.
- Higher understanding of opportunities for collaboration between NARS and CORAF.
- CORAF is an important ally.
- Experiences of cassava and CORAF team are valuable to learn from.

## Support modernization of NARS

### Excellence in breeding

- Excellence in breeding is key to the development of successful varieties.
- Breeding errors are costly, and we need to invest in operational excellence.
- Importance of SoPs.
- Exchange and evaluate clones from other CoP communities.
- Cooperation of regional breeding programs will strengthen sweetpotato breeding.
- Learning from the breeding of other crops like cassava will also strengthen the breeding activities in sweetpotato.
- Development of new variety cannot work effectively without developing the seed system.
- Need to encourage NARS to use digital tools for accurate phenotyping.

## Integrating breeding and seed systems for greater impact

- Proper breeding and seed system linkage requires market promotion varieties and favorable government policies.
- Strong need to link breeding and seed system
- Strengthening linkages between seed system and breeding programs is critical for promotion of newly released varieties
- Strengthen linkages between seed system and breeding is vital for promoting varieties
- Higher understanding of the importance of Seed system development in sweetpotato acceptability and utilization in West Africa.
- Higher investment needed by national governments in seed system linkages.
- Strategies about sweetpotato breeding and seed marketing processes.
- Harmonization between seed systems and breeding necessary.
- Development of new variety leads to seed vine multiplication and seed distribution to end users.
- Increased varietal dissemination and adoption requires a strengthened and effective seed system.
- Critical importance of better linkages between breeding & EGS.
- There is potential for strengthening the capacities of young breeders.
- A strong network / linkage between breeding and seed community of practice will facilitate learning and shared experiences on the crop.
- To excel in pushing products of breeding a strong seed system is needed.

## Integrating the breeding processes

- All stakeholders along the value chain should be involved in the development of the product profile at an earlier stage.
- Multi-disciplinary input into stage gate processes.
- There is the critical need to conduct market targeted varietal breeding through product profile development.
- In developing any sweetpotato variety: 1. there must be product profile. 2. This new variety must be capable of replacing the old one 3. Follow through to make sure there is enough seed vines for planting.
- The power of the sweetpotatobase is necessary for effective breeding program design, analyses and management.
- We must present regional initiatives to secure funding.
- Developing product profiles for varietal release is critical to meet the needs of the release of consumer preferred varieties.
- Importance TPEs and product profiles.
- Trial design and data management.

### Fund raising

- Fund raising is going to be for our implementation of the activities.
- Need for more funding to support research activities in West Africa.

### Linking and networking

- Easy and cost effective to engage virtually. But takes planning and leadership.
- Networking between through group discussion different Institution for working together.
- The actual nature of the CIP engagement with individual national programs and the network needs to be defined better (at least this was not clear to an external person).
- Young breeders could be linked with mentors in the community.

### Strengthening training capacities

- People are willing to engage. Thank you!

### What could be most improved about the whole meeting?

- Pre-meeting preparation tasks like the state of sweetpotato seed/breeding per country -could be a slideshow for us to appreciate what is happening in other countries.
- Overall understanding on seed system
- Pictorial display of some improved varieties of sweetpotato and their qualities.
- Strengthen capacity on product profiles.
- Management of National breeding program should be made to understand that the meeting not only benefit the attendees but also benefit the institutes where they are working and therefore should be supported to enable them to be online throughout the duration and periods of the meeting.
- Better internet access for uninterrupted webinar.
- Improvement on internet access if possible.
- Just adding some technical training on sweetpotato breeding strategies data analysis using some software.
- More participants but manageable.
- Make sure the potential participating countries are all invited for effective share.
- The side meetings often felt very short in duration and it was hard to get through the discussion topics in full.
- For some breakout sessions, the session leaders were not sufficiently prepared. Suggest pre-assigning persons to improve spreading out national program partners between different groups; then adjusting at the last minute based on who attends. Really well-done presentations in general and the IT coordination was very good for this type of meeting.
- The meeting was very good.

- Meeting was well conducted.
- Seeing tangible results and ongoing engagement will demonstrate that this was not all just a waste of time.
- The period could fix to one full week instead of spreading it over a 2-week period.
- Increase the length of time.

### Any other comments?

- It will be great if CIP and partners could help new joining teams in term of training to strategies of sweetpotato breeding.
- Strengthen capacity on tricot.
- For our first virtual CoP meeting it went well - technology, processes and people. good use of break out rooms. Really need to follow up on commitments for bimonthly meetings for training exchange of experiences!
  Many thanks to Sue for keeping us on track, and Ssali, Some and Ted for overseeing the program and participation.
- Thanks to the organizers and all participants. Great effort.
- Invite more regional institutions like ECOWAS to make sure sweetpotato will be upgraded.
- The Breeding-Seed system West Africa CoP will help improve the intensity and effectiveness of many activities on the sweetpotato crop.
  Physical meetings should also be planned at least one or twice a year for training purposes.
- Very inspiring initiative-highlighting the various concepts and practices to think about.
- The meeting was well organized with good contributions from all participants.
- The meeting was well organized with excellent time management. Migration to and from breakout sessions was superb. Audio quality was fantastic.
- I appreciate the organizers and IT support team for making the virtual conference possible. I will say its efficiency about 95 % compared to physical meeting. The moderator, Sue did an excellent job.
- Meeting was well organized and well participated.
- The meeting itself was extremely well organized in terms of logistics, time management and engagement. The moderators did an excellent job of introducing speakers and keeping discussions on track. The online Chats were very active and almost all queries were picked up and responded to. I was extremely impressed by the way the meetings were run and organized. Kudos to the team for pulling this off - a model for others to follow.
- Certificates should go to all who participate. The integration of such meetings into our regular or routine activities at our location comes at great sacrifice. One cannot guarantee to be part in all sessions.
- CIP and all breeders should please keep this meeting alive. It is very educational.
- Hope that this type of meeting will be repeated for East and Central Africa group and the Southern Africa group. Minutes should stress the follow-up action points.

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CIP is a research-for-development organization with a focus on potato, sweetpotato and Andean roots and tubers. It delivers innovative science-based solutions to enhance access to affordable nutritious food, foster inclusive sustainable business and employment growth, and drive the climate resilience of root and tuber agri-food systems. Headquartered in Lima, Peru, CIP has a research presence in more than 20 countries in Africa, Asia and Latin America.
*www.cipotato.org*

CIP is a CGIAR research center
CGIAR is a global research partnership for a food-secure future. Its science is carried out by 15 research centers in close collaboration with hundreds of partners across the globe.
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