Sweetpotato Seed Systems Community of Practice

SPHI
Sweetpotato for Profit and Health Initiative

Regional Technical Support Platform for East, Central and Southern Africa

Tenth Consultation - Sustainable Pre-basic Seed Production - Progress Review

Pride Inn Hotel, Nairobi, Kenya

Nov 12-15, 2018

Compiled by Faith Njoki Njunge

Sweetpotato for Profit and Health Initiative-
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Sweetpotato Seed Systems Community of Practice: Tenth Consultation- Sustainable Pre-basic Seed Production – Progress Review.
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Cover photo: Participants of the 10th SGA consultation meeting in Nairobi, Kenya. Photo credit: Faith Njung'e

Contents

Acronyms

CRI	Crops Research Institute
CoP	Community of Practice
DARS	Department of Agricultural Research Services
DVM	Decentralised Vine Multiplier
EGS	Early Generation Seed
ELISA	Enzyme-Linked Immunosorbent Assay
IIAM	Instituto d'Investigação Agrária de Mozambique
INERA	Institut de l'Environnement et de Recherches Agricoles de Burkina Faso
KEPHIS	Kenya Plant Health Inspectorate Service
KPI	Key Performance Indicators
NaCRRI	National Crops Resources Research Institute
NARI	National Agricultural Research Institute
NRCRI	National Root Crops Research Institute
OFSP	Orange-fleshed sweetpotato
RAB	Rwanda Agriculture and Animal Resources Development Board
PBS	Pre-basic seed
PI	Principal Investigator
SARI	Southern Agricultural Research Institute
SASHA	Sweetpotato Action for Security and Health in Africa
SPHI	Sweetpotato for Profit and Health Initiative
SS-CoP	Sweetpotato Seed Systems and Crop Management Community of Practice
TARI	Tigray Agricultural Research Institute
TOWS	Threats-Opportunities-Weaknesses-Strengths
TC	Tissue culture
ZARI	Zambia Agricultural Research Institute

Executive summary

The Sweetpotato Seed Systems and Crop Management Community of Practice (SS-CoP) tenth Consultation was held from 12-15 November 2018 at Pride Inn, Nairobi, Kenya. The planning and review meeting was attended by the Sweetpotato Action for Security and Health in Africa (SASHA) project pre-basic seed (PBS) system sub-grantees. There were 33 participants (12 female and 21 male) from 11 countries - Ethiopia, Kenya, Uganda, Tanzania, Ghana, Nigeria, Burkina Faso, Malawi, Mozambique, Nigeria and Zambia. The participants were predominantly sweetpotato breeders, and seed systems scientists implementing business plans for sustainable production of sweetpotato seed.

Each Country/institution (PI) representative made a presentation which covered the following information for the period June 2015 – November 2018

- Table 1a: Varieties under pre-basic seed production: 2015-2018
- Table 1b: Varieties in conservation/ maintenance 2015-2018
- Table 1c: Advanced clone release pipeline 2018 -2020
- Table 2: Pre-basic & basic seed production, sales and revenue 2015-2018
- Outcome story

There was also a marketing competition and the some of the NARIs had sent their entries before the meeting. To select the winners the NARIs were divided into groups for a "peer review" of the competition entries. This provided the opportunity for NARIs to review and reflect on each other's submissions, provide scores, and identify ideas that they can go back to their own countries to try.

Another highlight from the meeting was that each country/institution (PI) representative made a presentation focusing on Sustainable sweetpotato pre-basic seed production business continuity. The presentations highlighted the following:

- Fact sheet
- Progress with Threats-Opportunities-Weaknesses-Strengths (TOWS) strategies to strengthen business plan
- Next steps with implementation of business plan
- Message of commitment from Head of Institution

1 HIGHLIGHTS FROM SWEETPOTATO ACTION FOR SECURITY AND HEALTH IN AFRICA PHASE 2, YEAR 4

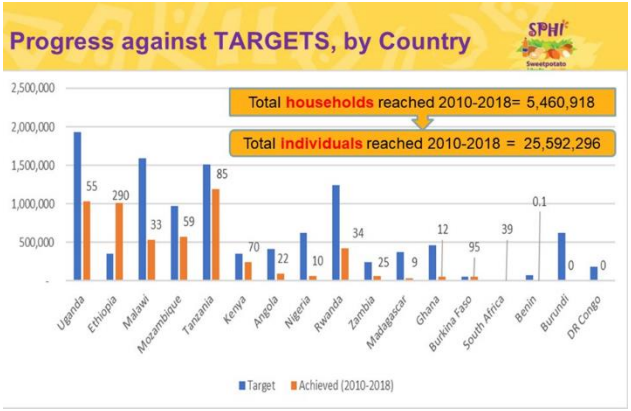
Moderator: Jude Njoku & Benard Yada Rapporteur: Faith Njunge

Jan Low: Presentation Link: http://ow.ly/KHxi30mMEu6

- Maria Isabel Andrade named Woman of the Year in Cabo Verde on 6th July
- Tawanda won Emerging Leaders Network Award on 16th July
- Successful Completion of 9th Annual SPHI Technical Meeting in Nairobi with four ½ day Deep-Dive Workshops and private sector exhibition.
- 2018 Meeting: 21 SASHA briefs and 24 Other briefs and the 4th edition of the OFSP passport to good health

Breeding in Africa for Africa

Generate populations to meet needs of users "Accelerated" sweetpotato breeding approach to produce varieties in 3-4 years instead of 7-8 years. By 2018, 76 varieties bred in Africa released by 11 countries; 51 are orange-fleshed sweetpotato.



Progress in Improving & Validating Improved Seed Systems Technologies. Produced training materials and two videos.

Food Analysis & Nutrition Evaluation Laboratory. There was an Installation of used inductively coupled plasma (ICP) equipment from Lima to be used for Mineral analysis and Contamination detection and this eliminates the need to go to Australia. There has also been significant progress in sample management with the new Food and Nutritional Evaluation Laboratory (FANEL) flow system.

Improved Knowledge Portal & Enhanced Social Media Presence. New dashboard has three metrics:

- Progress in reaching 10 million households
- Progress in release of improved sweetpotato
- Location of vine multipliers by country

CoP Meetings

We had four successful CoP meetings:

- STATA Statistical Package Training Linked to MLE CoP meeting 12th March: MLE meeting 13-18 March: STATA 38 participants (9 women)
- Marketing, Processing & Utilization CoP Lotus Hotel Blantyre, Malawi 23-24 April 2018, followed by Industry. Investment Forum, Mt. Sochi, 25 April 2018
- Seed System & Crop Management 15-17 May Kigali 55 participants, 12 SSA countries
- Speedbreeders & Genomics 5-8 June 2018 Nairobi, Kenya, 50 participants, 14 countries

Year 2 of the Excellence Awards. Communication for Change Award: $500. This can be brief, video, song, etc. Produced in 2017 (Jan-Dec) 50% on product quality; 50% on results**.** Winner was KNUST team, for their sweetpotato yoghurt campaign.

Best Scientific Paper on Sweetpotato: $500 Published 2017 (Jan-Dec) and the winner presents the paper at annual SPHI meeting. Winner was Derick Malavi.

2 SESSION 1: OUR JOURNEY – SUSTAINABLE EGS PRODUCTION

Each Country/institution (PI) representative made their 15-minute presentation, followed by five minutes for open discussion. Their presentations covered the following information for the period June 2015 – November 2018

- **Table 1a: Varieties under pre-basic seed production: 2015-2018**
- **Table 1b: Varieties in conservation/ maintenance 2015-2018**
- **Table 1c: Advanced clone release pipeline 2018 -2020**
- **Table 2: Pre-basic & basic seed production, sales and revenue 2015-2018**
- **Outcome story**

2.1 SOUTHERN AGRICULTURAL RESEARCH INSTITUTE – ETHIOPIA

Presenter: Fekadu Gurma; Presentation link: http://ow.ly/xnQk30mMECr

Outcome story

- The importance of virus free planting materials as a source for sweetpotato seed production is institutionalized
- There were no insect proof net tunnels at the start of SASHA-II project. Currently, there are 18 net tunnels that have been constructed with the support of CIP projects (SASHA-II, Irish Aid nutrition project & Better Potato for a Better Life project)
- Strong seed system has been established i.e. Cleaning (breeder seed), production of pre-basic seeds in net tunnels, production of basic seeds in isolated areas, production of QDS & certified seeds with the private multipliers
- Business plan developed for sweetpotato seed production, which is very much appreciated by SARI senior management
- One virus resistant white fleshed sweetpotato variety has been released and it is under multiplication
- Participatory variety selection has been conducted with demo-plots and four best performing OFSP varieties identified and proposed for release
- The Areka tissue culture lab of SARI capacitated and got the attention of the regional government. Hence, the regional government constructed five additional screen houses with over five million Ethiopian Birr (>USD 250,000)

- The tissue culture lab researchers and screen house managers received theoretical and practical trainings at KEPHIS
- Local private sweetpotato seed producers received training that capacitated them to produce quality seeds
- Training was delivered to SARI researchers on sweetpotato disease and insect pest identification and use of ELISA kits
- Training of trainers delivered to over 500 agricultural experts in various regions in collaboration with Ministry of Agriculture

Discussion

Do you clean varieties every year? Yes, but different varieties. Same varieties are maintained in screen houses and cleaned after two-three years since it has cost implications.

How is the revolving fund working? Good Revenue is coming in what has it been spent on? The revolving fund is working well. It is spent mainly on sweetpotato seed production related costs.

2018 sales and revenue are low, why? In Ethiopia, the demand for vines depends on occurrence of drought, where the demand for vines increases when there is drought. Hence, in 2018 there was good rain and the demand for sweetpotato vines decreased.

Does SARI use the same cutting size (30cm) for both pre-basic and basic? It is 20 cm for pre-basic and 30cm for basic.

Is it necessary to have so many varieties (14) in conservation? As a national breeding center, we are expected to conserve more than 14 varieties since other research centers in the country access varieties from us.

Is Areka TC lab now functioning? Not to the expected level due to shortage of human power.

Are you planning to partner with other countries to meet high demands of planting materials? Yes, with pleasure.

What are your plans to sell pre basic seed so that private sector supply basic seed? We are planning to technically capacitate the private multipliers so that they start multiplying the basic seeds. In such cases, we will start selling the pre-basic seeds to them.

What do you do with excess seed unsold? Distribute to farmers as emergency seeds for root production.

Comments and suggestions

- Good that revolving fund is used for the production costs about 50%
- What percentage of the sales is ploughed back into EGS?
- Good progress and progress on sustainably on the seed system
- Doing well on sale of basic seed
- Don't understand the varieties in pipeline for release
- You have to clean and maintain all released varieties in TC and GH
- Good to see that Tula is dropped
- Good to see varieties keep coming to replace old ones
- Good work and nice presentation
- Great effort keep it up
- Good presentation with good quality photos
- Good breeding work
- Use of revolving fund maybe be dependent on management and accountability
- Good progress but important to have exclusive crop-based RF account. Required for advocacy with government

2.2 NATIONAL CROP RESOURCES RESEARCH INSTITUTE – UGANDA

Presenter: Bernard Yada; Presentation Link: http://ow.ly/zc1b30mMIdH

Outcome Story

- The value of quality seed is being appreciated by the producers
- Seed producers are able to sell ratoon seed thus doubling their profits
- Root producers are realizing higher yields from the same varieties. This is positioning sweetpotato as a major relief commodity in the country
- The project has set the ground for the development of the formal sweetpotato seed system in Uganda

Discussion

- What is the fate of the certified seeds produced?
- You don't produce pre-basic?
- How are you going to ensure that varieties are cleaned at release?
- From your revenue, you have not started selling till now. When are you intending to start selling?
- How are you addressing a too high price for EGS that is scaring away customers?
- Why have plans to increase the multiplication while you have no revenue to sustain the RF?
- Root producers realize higher yield from some verities what does that mean?
- Pre-basic and basic seed production is very small for an immunity that is well known for sweetpotato production. What is the reason for this?
- Have you done any cleaning after the 1st one?
- How did you release Narospot1 while it is not yet cleaned?
- Good to hear you are also producing cream/white fleshed. How is their market?
- Projection for 2019-2020 is low. How do you sustain basic production from RF?
- What is the adoption rate of the varieties particularly Naspot12O and Naspot13O?
- When will advance clones be cleaned up? (i.e. should be before release)
- Are advanced clones weevil tolerant/resistant?
- What is the plan to extend basic seed production into new areas?

Comments and suggestions

- Good presentation- increase on capacity of pre-basic seed production
- Good to see planning for future processing investment
- Good to see you responding to farmers preferences
- Outcome: How have demos contributed to increasing awareness among seed and root producers
- Good breeding progress
- High potential to really making this sustainable.
- Good to see consideration of processing traits-shape and skin smoothness.
- Additional selection criteria- skin colour, root shape for processing and mechanization
- Please put your 6 advanced clones into clean up now
- Good presentation but needed to bring up evidence of outcome stories -figures, picture etc.
- Impressive that you are paying attention to qualities that will enhance processing

2.3 BIOCROPS (U) LTD-UGANDA

Presenter: David Talengera; Presentation link: http://ow.ly/e6sn30mMI2H

Outcome Story

Alinyikira farmer field school that hosts the satellite nursery has 32 members**,** two DVMs. The school has sold 100 bags of cuttings and processes OFSP flour. The farmer school also has a savings club.

Discussion

How do you get replacement virus-indexed materials? Replacement materials are obtained from KEPHIS and Makerere University.

What will happen when households stop buying from BioCrops? Do you think your business is sustainable without projects? Orange nutritive sweetpotato versus the traditional white varieties, clean planting materials versus the traditional cuttings, project supported seed systems versus the farmer self-motivated systems and the infancy level at which the seed and inspection system of this crop are pertinent issues to be addressed for a sustainable sweetpotato business. The current price of the basic seed at BioCrops is still highly subsidized because the buyers cannot afford the actual price to cover the production costs and the company profit.

How many times should we sub-culture TC? The number of sub-cultures one should stop at without compromising the cultivar integrity is yet to be determined empirically. But currently we don't exceed 15 sub-cultures.

Do you think distribution/sale of virus susceptible varieties increases the reservoir of viruses in the system? There is no resistant variety per se. Instead varieties are either susceptible or tolerant because in the end (in three seasons) the yields go significantly lower. But the use of clean planting materials can check the disease incidence through reduction of the virus inoculum.

Saving club- How much was saved per famer? Each farmer makes a weekly saving of Ugshs. 15,000 (USD 4).

How are you collaborating with NACRRI as a NARI? BioCrops has been contracted or sub contracted by NaCRRI to mass produce clean planting materials for NaCRRI projects that require virus free starter materials of sweetpotatoes and cassava. BioCrops and NaCRRI are also partners in establishing a seed and inspection system for these two crops.

Do you think these are the only outcome stories? Can you share more? In addition, BioCrops has been a model in the establishment of a clean seed system for sweetpotato.

How do you get feedback from farmers on varietal performance? Through visits and meetings.

What is your profit margin relative to banana? The profit margin on sweetpotato is minimal because we are not fully recovering the production costs. Currently, the sales are not predictable as most sales are not directly to the root producer but are done through secondary multipliers.

Cooked sweetpotato taste scoring. Which was the best tasty sweetpotato? When considering the two varieties (Vita and Kabode) that are satisfactorily orange, Vita is preferred to Kabode as the latter is very soft.

You presented the sweetpotato does not have high status in Uganda. Are you sure the business should be sustainable? Because this means you have to do a lot of awareness and advocacy. I think this question meant importance of sweetpotato as a staple food. Sweetpotato is grown almost by all households in Uganda. It is however more important in areas where perennial food crops such as banana do not perform well due to prolonged dry seasons. But advocacy is needed in terms of the nutrition benefit and the improved yield that accrue from the virus free cuttings.

Why are you planning to reduce the varieties under pre-basic seed production in 2019 and 2020? In addition to the nutrition benefit of the carotenoid (orange colour), preference in terms of processing potential, such as puree, points to fewer of the seven varieties we have been multiplying.

The colour of processed flour and chips is more of cream. Are you sure vitamin A is still retained? The fading is brought about by the dry process such as over exposure to the sunshine. It is also cultivar dependent, Vita, Kabode and Naspot 13 giving the best orange colour.

Is production of sweetpotato flour economic? Flour production is economical when it comes to absorbing the bumper harvests accruing from the use of clean planting materials. The current recovery rate is three to four kilograms of fresh tuber to make one kilogram of flour.

You introduced only the taste of the varieties what about the nutrition part of the variety? The nutrition analysis of the bio-available Vitamin A is already done for all the released OFSP.

Comments and suggestions

- Need to really study the demand of varieties and reduce the number to be maintained. It can always be picked up from research
- Good that you do demos to support your business
- Good learning experience of satellite production
- Good to recognise different request by agro-ecology and end users
- Outcome story marketing strategies through dedicated staff (interview Simon and David)
- Well done
- It is good the need for clean planting materials has been established

2.4 TANZANIA AGRICULTURAL RESEARCH INSTITUTE-KIBAHA

Presenter: Nessie Luambano; Presentation link: http://ow.ly/OHxt30mMEEV

Outcome story

New screenhouses and storage water tank at TARI Ukiriguru

- Multiplication of Pre-basic at TARI Kibaha
- We all work together to sensitize and make sure we change the story and perception of OFSP in Tanzania
- The project started in 2015 where we had one screenhouse at Kibaha built buy RAC project and one at Ukiriguru also from previous project. We had screenhouses that needed restoration that is four screenhouses (1 Kibaha, 1 Ukiriguru and 1 Uyole) to make a total of seven screenhouses

- We used to irrigate using buckets and we had problem of water. We installed water supply system by having storage water tanks and water pipes to screenhouses and some with drip irrigation This has increased water availability especially at Kibaha where we have 20, 000 litres tanks for harvesting and store rain water
- Our team has managed to sensitize people engage in multiplication of seeds and the number of multipliers has increased with time
- With a lot of sensitization through radio, TV, Agricultural shows and field days, farmers are waking up. Now they know the value of pre-basic seeds and they only come to get vines for further multiplication.

Discussion

Why are you using six varieties for a long time; farmers need new varieties with other attributes? We have been producing the six varieties because they had high demand and we did not release other varieties to also add in the list.

Is it good to keep varieties close to one another in the same screen house? We are using troughs which separate one seedbed from another to avoid mixing of the varieties and because the materials are all clean we have no worry of infection.

Is releasing many varieties a positive or a negative to a seed system and the breeder? We have few OFSP released varieties and in the country the varieties are released per agro-ecological zone hence this helps to increase what farmers can decide to produce.

How much to you spend buying all those quantities? Are you managing profits on the RF? The quantities are for three institutions and for three agro-ecological zones and planted in seven screenhouses. We manage profit on RF after starting using business plan model. But if the materials are not purchased due to bad weather/no rain we make a loss.

Strategic marketing approach vs people's attitude? Strategic marketing approach can change people's altitudes, e.g. if people use sweetpotato just to add on daily food and if they have alternative they don't eat. Now you can use message on health benefits for OFSP and this will increase uptake.

What caused reduction of production capacity in 2017? Low take up from buyers who had committed to buy.

How do you intend to scale up production? By increasing basic seeds which are cheap to farmers and can help to reduce productions costs.

The number of vines produced under pre-basic & basic is almost the same? Why not produce less basic than pre-basics? The production area for pre-basic is limited we can increase basic seed production, but we were advised not to produce much so that we give multipliers a chance.

Is it necessary to know farmers preference for the new varieties in the planning? We already know farmers interest for OFSP are those with deep orange and good for processing.

Are the varieties released by region? By agro-ecological zone where that can have more than three regions.

How is the revolving fund working? We use it to strengthen facilities e.g. irrigation facilities and use for the costs which are not in SGA budget.

Separate seed produced and sold. What do you do with the excess seed? Excess seed is planted outside screenhouse for the following year's research activities.

Which one (pre-basic or basic) vine multiplication is more advantageous? We think basic due to high demand because the price is low.

Comments and suggestions

- Good presentation and a lot of activities. Needs to be focused.
- Team work commendable
- Well done
- Congratulations for getting the will of farmer to buy potato seed
- Sensitization –well done as TARI has been able to win customers to buy EGS
- Outcome story-use of marketing strategies to wake up farmers
- You seem to have a good collaboration with different institutes
- Good overview of the complexity of systems in Tanzania
- Great team work and coordinating 3 centres
- Your entry on production/revenue tab could be have been clearer if the tab on production is what is produced not sold which will give you a clearer picture to plan next production cycle
- Next time try to produce your own tissue culture material to strengthen revenues and revolving fund

2.5 DEPARTMENT OF AGRICULTURAL RESEARCH SERVICES -MALAWI

Presenter: Obed Mwenye; Presentation link: http://ow.ly/3YJ730mMEHq

Outcome Story

- Disease-free planting materials of all released cleaned-up Sweetpotato varieties produced
- Billboard at Chinakanaka market, stimulating demand

Discussion

How much profit are you making from your sales? The exact figures will be guided by the exercise underway. We haven't done a detailed financial analysis.

No Kabode, Vita, and Ejumula varieties. Why? We don't have these in Malawi. We have never evaluated them.

Why are you maintaining material in open field under risk of getting infected by virus? Not everything is maintained in the field. We have more than 15 registered varieties. Only the ones that were cleaned are maintained in the screenhouse. The rest are still outside.

How do you manage nine varieties for seed production? Are they all in demand? All the varieties we are maintaining are in demand. Even other varieties that haven't been cleaned are also in demand and once cleaned will be promoted. The market is very diverse.

How far ahead should we plan breeding/release pipeline? Breeding is an on-going activity. For Malawi, there has been a release of new varieties this year and another set may be coming in a year or two. It all depends on the way the evaluations are going in the field.

What are the names of released varieties? Royal choice, Nsungabanja, Ntetsanjara.

What are the strategies employed to ensure adoptability of the many varieties under production? Market all the varieties under production each variety has a different advantage over the other.

Do you have a strategy on pricing? Mostly we depend on government set prices. However, as a commodity team we do advise.

Comments and Suggestion

- Good presentation on status of different varieties
- Impressive that you are including sweetpotato in the new seed ACT
- The pricing strategies need to be reviewed quickly for the seed business to be sustainable
- Declaration of source of planting material of EGS for seed growers is good which could be done by other countries
- The private sector use of net tunnels and the billboard are a good initiative
- Good presentation and achievements so far
- Good use of seed standard to declare source of seed

2.6 CROP RESEARCH INSTITUTE – GHANA

Presenter Marian Quain; Presentation link: http://ow.ly/9cNs30mMEJx

Outcome Story

- Cleaning of sweetpotato planting materials
- Net tunnels
- Innovation platforms
- Developed a business plan
- Revolving fund is working well
- CASA de ROPA Sweetpotato factory that is processing Bread, Chips, Biscuits, Cake Composite flour using sweetpotato

Discussion

Pre-basic seed production is very high and the sales are very low why? Customers indicate they will be buying so we get the material ready but they do not come for the materials most of the time. We now only do pre-basic production when payment has been effected.

Why are you stopping production of basic seeds? We want basic seed production to be done by the DVMs since our lab is into conservation, cleaning and pre-basic seed production. We also plan to have the agronomy team consider basic seed production and this is still being discussed.

Can you meet demand with pre-basic alone? Yes, we can make financial gains with pre-basic seed production alone. I am interested in the focus. Basic seed production involves field maintenance which can be demanding.

How are you going to increase the pre-basic seed production? We must fix a broken screenhouse and we will have the space to meet the growing demands.

Do you have clients for all that quantity? Certainly.

Given your capacity couldn't you sell higher targets and really advance more? Certainly.

What marketing strategies are in place to meet the sales target? Advertisements on our website, road signs, car stickers, flyers, WhatsApp just to mention a few.

Innovation platforms are they a success or failure? They have been a stepping stone and we hope to make the best out of them. We will be monitoring their progress and feed them with the technical

information as well as planting materials needed. The national chair is on constant contact with us the researchers.

Why promote white-fleshed for school feeding program having known the importance of OFSP to the children? White fleshed fits the space of yam in the Ghanaian diet and the children like it fried or boiled. They are also lines that we have to be sure we do not lose them. In any case at the various schools we give them the option of all the lines and they select the best variety they prefer depending on how it can be cooked.

Your net tunnels in CRI is it pre-basic or basic? We supply pre-basic to be planted in the net tunnel for production of basic seed.

The institution is incurring high costs on electricity and others. Don't you think leaving out basic seed production reduces the revenue base to meet the huge costs? Basic seed is an option we have to consider, and it will depend on how well we can break even. The breeder is working on something and we hope it can contribute to the income.

Comments and suggestions

- Demo material can be sold or find a business for demo plots
- Good attempt to provide video and so far, the progress made in promoting OFSP in Ghana is good
- Conserving varieties for other countries is good in case of a disaster in one country
- Great job supporting /employing women
- Well done in linking seed plan and root plan
- This is a need to promote more DVMs than to rely only to 3 processing companies to buy their pre-basic seeds

2.7 TIGRAY AGRICULTURAL RESEARCH INSTITUTE-ETHI0PIA

Presenter: Beyene Demtsu; Presentation link: http://ow.ly/Jytq30mMEMo

Outcome Story

- There is high level management acknowledgement of the sustainability of the SASHA model for early generation seed production
- Very strong push for other crops (cereals, pulses) to follow example and produce and implement a business plan for pre-basic and basic seeds
- Country-wide seed standard for EGS and QDS standards
- Improved infrastructure (Water plant, Backup generator Net tunnels for Pre-basic seed multiplication)
- Dependable and working seed system established appreciated by stakeholders and now being overseen by the BoA
- Private TC company involved with seed production

Discussion

Have you considered the Triple S system in the dryer areas with irrigation challenges? I think the Triple S system is more helpful in dry areas like ours if subsistence households are targeted. Tigray is a drought prone area and irrigation potential very low (to make things worse available irrigated lands

are planted with vegetables and fruits if not traditional crops) and it is very unlikely a subsistence farmer will maintain sweetpotato in irrigation. TARI in collaboration with the SASHA project have tested this technology and it works very well for 8 to 9 months of dry season. If sweetpotato is to be scaled up to most farmers, the only technology at hand for seed maintenance is Triple S. The other option is free distribution of long-distance transported vine cuttings every year which is always dependent on institutional assistance. How and when the Triple S is promoted and demonstrated large scale is to be seen.

For 2019-2020 Do you think there is market to double your sales? Yes, we think there is a market for that. The only problem is adopting proper marketing and institutionalization of the stakeholder meeting to establish contract farming both to EGS and basic seed. Acknowledging the effort needed to strengthen the marketing with robust marketing strategy and early in the year stakeholder meeting market will not be a problem especially for basic seed.

Please give more details on rooted plantlets? The rooted plantlets (pluglets) are produced in acclimatization tray using cocopit (coco husk) using a two node cuttings of 3 to 5 cm length dipped in rooting hormone. The plantlets will grow in greenhouse with appropriate temperature and humidity. 15-20 cm plantlets are then planted in a wet field and irrigated immediately. In our observation, these plantlets do establish themselves easily than the cuttings, however yield assessment should be properly investigated to see if there is any difference from the cuttings.

It's good that your seed estimates are institutional but are the estimates accurate? We have tried to be as accurate as we can be to the best of our ability. After all, they are estimates.

How are you maintaining the net tunnels that were built? The biggest problem is access to the insect proof nets. We have managed to maintain broken nets from saved nets obtained from CIP. Other materials can be easily obtained locally. We are now acquiring three more strong mobile net tunnels to produce more ratoons. In general, net tunnel maintenance is an activity that needs planning and assistance for insect proof nets.

As you are with private sector, is it cost effective maintaining varieties in TC? We are a public institution; however, we believe it is much better way to maintain some plants in TC because TC plants greatly reduce the chance of virus infection and where one can lose an entire maintenance block in a single technical error. Besides cost of greenhouse maintenance is not significantly low as compared the small number of plantlets need to be maintained in-vitro.

What is the basis for your planned production? The biggest bottleneck we had in production was limited or lack of irrigation water. Now thanks to CIP we have the water purification plant installed and perfectly working, we have an irrigation to supplement during the dry months where the Illala River will be dry. In addition, we believe with improved marketing, there will be enough market to sell all our produced seed as per our plan. We think it is even a conservative estimate given that buyers prefer to purchase from TARI.

Why put amount sold for 2019-2020 since you have not yet produced and sold the vines? The table says planned. So since we did put the estimated production, we also put the estimated revenue at current price. Should that not be necessary, it could be omitted.

Comments

- There is no risk of genetic compromise if maintaining varieties in TC
- Good connection between breeding and seed system
- Good description and progress in pre-basic and basic seeds

- Congratulations on selling 100%of your production

2.8 KENYA PLANT HEALTH INSPECTORATE SERVICE (KEPHIS)

Presenter: Florence Munguti; Presentation link: http://ow.ly/rfGY30mMLaZ

Outcome Story

- Revolving fund mechanism: Is one of the unique components of the sweetpotato project that KEPHIS management has embraced as a role model for other projects/crops to enhance sustainability
- World vision, Elgeyo Marakwet KEPHIS MOU
- Visit by Governor Uasin Gishu county to KEPHIS MOU under development
- Visit to TC lab by KEPHIS board of Directors Supported expansion of TC growth rooms
- Visit to pre-basic production screenhouse by KEPHIS board of Directors

- Sold to World Vision over 60,000 cuttings. Order in 2019 for over 200,000 cuttings for different varieties

Discussion

What form of linkage do you have with basic and root producers since you are regulators? We involve basic and root producers in all the awareness programs to pull demand for sweetpotato. We also support in terms of farm inspections.

Do you produce basic seed? Who are you customers? KEPHIS only produces pre-basic seed.

What do you sell to NGOs is it plantlets or cuttings? 3-4 node pre-basic cuttings at Ksh 10-35.

What class of seed do you sell? Pre-basic.

Since you are regulators do you think you should partner with private sector to do pre-basic products? Other players are coming up to start pre-basic business and KEPHIS is supporting them, e.g. like JKUAT (Jomo Kenyatta University of Agriculture & Technology).

What is the price of a single vine of pre-basic seed? It seems too high. Price ranges between Ksh 10-35 depending on type of client, the quantities ordered as well as on the time of order.

Do you operate pre-basic and basic seed business? No, we deal only with pre-basic seed.

Comments and suggestions

- KEPHIS-Center of Excellence for OFSP in EAC countries
- Good achievement in implementation of the RF. Hope you will manage the RF well to really sustain the process
- It's time to make seed value chain more formed through various legal partnership models
- Good presentation a lot of things to learn from
- Sweetpotato mainstreamed/incorporated in institutional workplan
- Good support to register multipliers
- Advance request/contacts the way to go

- Good presentation but it would be interesting to learn on those other factors affecting the pricing of sweetpotato cutting
- Good to see contracts with World Vision
- It's time to measure spill over effect what extend KEPHIS materials were reached people
- Excellent interaction with county governments and potential for youth agri business. Good work although more effort is needed in TC lab to maintain important varieties in significant quantity

2.9 RWANDA AGRICULTURE AND ANIMAL RESOURCES DEVELOPMENT BOARD

Presenter: Jean Ndirigwe; Presentation link: http://ow.ly/w1Bw30nxC6t

Outcome story

- Status of production of EGS 2015
- Production of Pre-basic seed with 4 OFSP (Gihingamukungu, Cacearpedo, Terimbere and Ndamirabana) in screenhouse and Net tunnels with of 6000 cuttings
- Status of production of EGS 2018 (6 varieties)
- Vita and Kabode (in SC, Net tunnels and Mobile net tunnels) with a capacity of 28,500 cuttings
- RAB senior manager support the sweetpotato-BZPLN and RF initiative
- Use of growing calendar and business plan in EGS
- Skills in tissue culture, screenhouse and net tunnels management increased
- Sweetpotato seed field standards produced
- Strengthen linkages with DVMs to get registration / 95 DVMs

- RAB senior manager support the SP-BZPL seed and RF initiative
- Sweetpotato EGS business plan and revolving fund Validation Study of RAB/ Positive impact with spill over impact on other commodities/ Cassava and Potato
- Sweetpotato pricing strategy from 10 Rwf to 31 Rwf per cutting

Discussion

How are your customers going to react to the increase from 10 Rwf to 30 Rwf and will management agree? There will be no problem because the Rwandan francs has devaluated compared to 1 USD since 2015 from 500 Rwf to 890 Rwf/1 USD.

Don't understand why the four new varieties have not been released? Are they being cleaned? Still under cleaning. We have submitted them to Release Committee. They will be part of the 2018 National catalogue.

How come you plan the same number for all varieties? Is the demand the same? Yes, the demand is the same for all OFSP varieties (which we are promoting).

What happens to vines produced but not sold? They are planted in RAB stations for roots production

Too many varieties under multiplication. How is the demand level of each? We have many varieties at TC, but we are promoting only four varieties.

When do you stop conserving a variety if it is not in the seed systems or not used for breeding? Our RAB Gene bank keeps sweetpotatoes germplasm. It has enough space to accommodate all the varieties.

Why do you intend to reduce pre-basic seed production in 2020? The cost of pre-basic seed production is too high at TC. But we will focus on SC and MNT production (minimum number) to feed the basic production at DVMs and other buyers. We expect the DVMs will increase their production at long run.

Comments and suggestion

- Great support from senior management
- Please note that a lot of awareness and promotion should be done for RAB to ensure sustainability of the business
- Outcome story well done
- Well done it indicates organized work
- Well done, however I am of the view that you can concentrate more on basic seed production compared to pre- basic because your get more returns

2.10 INSTITUTO DE INVESTIGAÇÃO AGRÁRIA DE MOZAMBIQUE

Presenter: Jose Ricardo; Presentation link: http://ow.ly/LfiF30mMEOI

Outcome Story

- Due to the lack of companies producing basic seed, pre-basic seed production was used to establish our fields for the basic seed production
- Basic seed was sold to NGOs for distribution in their communities, or to CIP for establishment of DVMs, or mass distribution
- Due to the drought the total production (42,000 kg) recorded in 2015 was not absorbed by the market (19,741 kg); with beginning of regular rains, sales increased a lot 2016 (46,979 kg)
- In coordination with USBEA, our expectation is to increase the production to about 48,000 kgs by adding more location (Nampula & Nhacoongo)
- Now have a request of 16,000 kg from CCS project to be produced under contract
- Recognized by IIAM DG as good example to followed by other crops

Discussion

How do kgs translate into number of cuttings? 1 kg=50 cutting vines with 30 cm.

How do you sell vines in kgs to manage? Yes, in kg because we are dealing with high volumes.

What informed your decision to produce varieties like Bie and Bita in 2020 yet you had disregarded them from 2015-2018? Bie and Bita are new varieties released in 2016 and we started producing them in 2017.

In your MOU, how will you ensure timely payments to the system? Our customers takes the cutting vines after payment.

The revenue trend seems too low. Is the project able to break even? Our revenue is about 14,000 USD, this is enough to continue the project.

What do you do with the unsold vines? Unsold vines we destroy the vines.

How are you using the revolving funds? Is it working? We make a plan and budget of activities and them we request.

Do you have any strategies to increase sales? Contact new customers.

Is drought a threat or an opportunity for sweetpotato seed business? Yes, after drought the demand for sweetpotato vines is very high.

Comments and suggestions

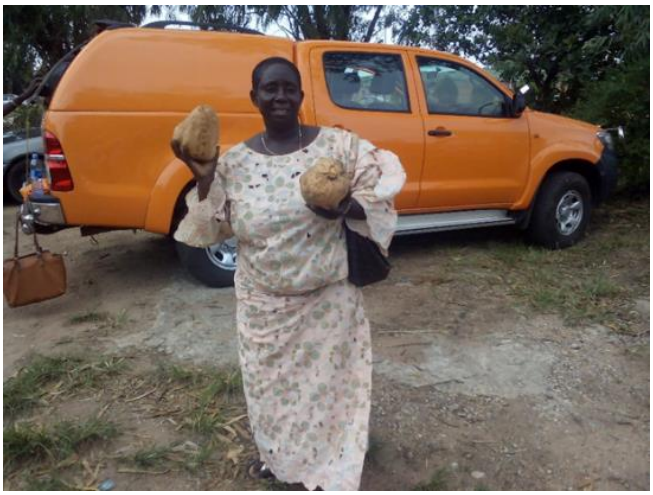
- Please a lot of work should be done to improve your production
- Too many varieties under production. Please for future purposes concentrate on the varieties in demand
- It's time for you to change KG to cuttings unit of productions
- Good description of the varieties and their health status
- Varieties release. Requirements for release committee
- Should have a relation between weight and number of cuttings by variety

2.11 NATIONAL ROOT CROPS RESEARCH INSTITUTE – NIGERIA

Presenter: Jude Njoku; Presentation link: http://ow.ly/oe3b30nxCtl

Outcome story

- Sweetpotato production has assumed another dimension for income generation
- High quality vines has unlocked the potential of sweetpotato to address malnutrition and food security
- Yields have doubled or tripled with high quality vine and farmers now smile home with bumper harvest and increase income
- The introduction of high quality vines in Osun state of Nigeria has sustained supply of roots to the school feeding program
- SASHA 2 project built capacity of farmers and opened up get way to access of high quality vine production at community level



- Root producers now see the need for high quality vines which drives demand for vines
- Crop cut data collected indicate high yield in famers field

Discussion

How can we speed up dissemination? We can speed dissemination through; development and creation of new market strategies where many farmers can have access to the products.

- These can be through social media like online orders, Facebook, Twitter and WhatsApp etc.
- Maintaining customer data base sheets and follow up
- Contact with the sweetpotato bigtime producers in the state and beyond and increase farmers delivery incentive

Basic seed was not indicated as sold/ if so, where did the revenue for it come from in 2018? That was a typo error, we sold basic seed in 2018 but in limited quantity (N20, 000) due to certain challenges which amongst them were high pest and disease incidence.

If you did not produce pre- basic seed from 2015 to 2016 from where did you get the planting materials to produce basic seed? Yes, initially in 2015 through 2016 we did not have a functional sweetpotato screenhouse, the ones we are using now are under construction. Then we only maintained and produced seeds in net tunnel using the materials we have in the TC lab. We hardened and started cutting from there to the net tunnel and further to open field for multiplication.

What happens to the unsold vines? Most times, we only harvest on demand but on the other hand when harvested and unsold we usually plant them back as multiplication.

If you sold 40% of what you produced what happened to the rest 60%? Nigeria has a peculiar case here especially for our sweetpotato farmers whom rely on recycling their old materials each year. This affected our quantity harvested and sold with about 60% of what is produced maintained back in the process, which is a loss to us.

Is there a revolving fund? Is it sustainable? Yes, we have RF for prebasic /basic seed production. The RF account is a sub account with our institute commercial venture account which is accessible and efficiently managed. In terms of the fund sustainability, I can say yes, because for now we have recorded about N200, 000 (1USD= N360) and we have planned to continue business through contract and institutional buyers. Currently, we are strictly following our customer data base to ensure they continue patronage.

What were the harvesting parameters for crop cuts? Were the cultivation practices the same? We usually measure per number of nodes, for seed production- we cut three nodes per cut and four nodes (15 cm) for root production. With this, we usually get an average of five cuttings per stand for four nodal cuttings and 6 for 3 node cuttings.

Yes, the cultivation practice was the same, the same method of planting and practice. But the growth rate will not be the same since the new one is the progeny or regeneration of the first.

Comments

- Production of vines is higher than the sales. You need to change marketing style
- Good progress.
- Though the sales so low there seems to be increase continually

2.12 ZARI ZAMBIA AGRICULTURAL RESEARCH INSTITUTE

Presenter: Martin Chiona; Presentation link: http://ow.ly/CYxP30mMER6

Outcome Story

- Seed growers mandated by law to obtain clean seed from known source which guarantees EGS sales
- With the sweetpotato EGS being implemented, the Seed Unit was borne
- It was decided to license the hybrid varieties and some OPVs
- Collected loyalties
- Held stakeholder meetings and seed fairs to create and estimate demand
- Outcry from seed producers for pre-basic seed especially of self-pollinated and vegetatively propagated varieties

Discussion

What are some of the strategies put forward to bring on board private sector in to sweetpotato seed multiplication as a mechanism to increase adoption? We give them a maximum of 5 varieties

to test at their cost and they decide what they prefer. This way they make an informed decision and adoption is much higher.

Mansa red-why is it so popular- what are the traits? OFSP produces big roots, has high DM and red skin. Above all it is marketable.

How to get contracts with buyers again? We need to continually spread the information on the values of quality seed and to maintain quality by renewing the seed with virus free vines the regularly.

Will you have market for 172,000 cuttings in 2019? Indeed, we are currently preparing a contract with CARITAS CZECH to supply vines to a new refugee camp. In addition, a youth association has pre-paid for 10,000 vines with likelihood of additional payment.

How prepared are the private sector to pay for seed as NGOs have been supplying? Most of them do not maintain seed due to challenges of water in the off-season. Hence demand for vines at the start of the season will always be there.

If conservation is in screenhouse is there double box protection? We do not have double box, we have a separate screen house.

Seed unit-license OPVs for royalties- is this working? It is working for exclusive licensing.

Demand estimation-how do you do this now? Primarily through stakeholder meetings and phone calls.

Stakeholder meetings and seed fairs-which is best? Both have their advantages. So far stakeholder meetings have given us more customers.

Comments and suggestions

- Estimates on consumption of sweetpotato leaves: difficult to estimate. However, it is one of the popular vegetables and may be the only one available during the dry periods. A study might be in order.
- Good use of seed law to get seed from known source
- Great to see DVMs selling leaves for vegetables
- Good to know you have revised your seed law which will guarantee you getting request for seed.

2.13 INSTITUT DE L'ENVIRONNEMENT ET DE RECHERCHES AGRICOLES DE BURKINA FASO (INERA)

Presenter: Some Koussao; Presentation link: http://ow.ly/1SpD30nxC8k

Outcome Story

- Positive evolution of production and sales
- INERA moved an unknown crop in seed system to a more structured production especially using OFSP
- The model of production is innovative and like a national showcase for the vegetatively propagated crops
- TC lab will allow micro propagation and cleaning up. This will include other commodities like potato, cassava and citrus

- Regarding the capacity built throughout SASHA II (technical, Business idea + RF process, influence on policy) the EGS production is looking sustainable

Discussion

As you plan to do basic seed in 2019/2020 what will you do differently this time to cut costs? Production in open field in nearby irrigated lands.

Why did the production go down from 2015-2016? No. The production of pre-basic went up from 2015 to 2017, but due the lack of clean source of planting material for our varieties, we intentionally reduced the 2018 production by cutting of production cycle.

Why are you going to do micro propagating of clean varieties? It is a kind of conservation of our source material. Also, the tissue production will not only focus on sweetpotato but mainly on potato. Cassava will also be multiplied.

How is the acceptance of purple fleshed sweetpotato in Burkina Faso? The purple variety coming up especially in the Eastern and Western regions. Not completely exposed to all the production areas.

Why don't you include improved varieties cleaned up white- fleshed sweetpotato in seed system? The demand on sweetpotato seed in Burkina Faso is on OFSP. We are now doing business and therefore we produce what has a chance to be sold.

What are the regulations in using a variety that has been released in another country? In Economic Community of West African States, variety released in any member country will not need formal release in the other countries. Only a good description of the variety will be needed to allow use in other member countries. This includes Chad and Mauritania that are not member-countries**.**

You are maintaining seed in heat conditions. What are the lessons learned? The lessons we learned referred to the need to reduce the heat inside screenhouse during the heat time from March to June using a reflective net fixed at the top of the roof. However, after June, the net has to be removed to allow vigorous plant growth of. Then, the net should be fixed in a way to allow removal.

Sale trends is up and down. What makes you think in 2019 and 2020 the sale will be constant? The demand normally has increased since the beginning, however, the poor rainfall pattern always affects provision. From 2019 to 2014 a new programme (WAATP) will have a huge distribution of OFSP planting material and we will be supplying.

Will you be able to sell planned production for 2019-2020? Yes. With TAAT and WAATP will have to even produce more.

Comments and suggestions

- Good graphs for outcome story
- New varieties in the pipeline is a positive
- Include white fleshed sweetpotato to give variety choice to farmers and consumers

3 SESSION 2: PEER REVIEW OF MARKETING STRATEGY COMPETITION ENTRIES

Moderator: Srini Rajendran Rapporteur: Christine Okoye

The moderator addressed the NARI institutions on the criteria/modalities of the peer review of marketing strategy competition entries as follows:

1) Judging of the marketing competition has two components;
    a. Submission of entry before deadline on 29th
    b. Two scores will be done, one from the CIP by Srini Rajendran and Rosemary Kihiu and the other by the NARIs.
2) During the scoring, there will be a group work session for peer review of the competition entries. This will provide the opportunity for the NARIs to review and reflect on each other submission, provides scores and identify ideas that they can go back to their own countries to try.
3) Divide into 3 groups with 4 NARIs each
    a. Each group will have three component entries
    b. They review entries (ie.3 entries) with the evidence, and NARI can provide clarification
    c. 3 NARIs jointly score the other in turn
    d. In the group work- the NARIs are expected to present their scores and the ideas that they will take to plenary
    e. Each NARI will have a peer score and CIP score which are added; with the highest total will be the winner and announce on the 14th November, 2018

Based on this, three groups of NARIs were formed.

Table 1: list of the NARIs Groups for marketing competition scoring

GROUP A	GROUP B	GROUP C
INERA (Burkina Faso)	BIOCROPS (Uganda)	ZARI (Zambia)
DARS (Malawi)	CRI (Ghana)	TARI (Ethiopia)
SARI (Ethiopia)	TARI (Tanzania)	KEPHIS (Kenya)
RAB (Rwanda)	NRCRI (Nigeria)	IIAM (Mozambique)

Among the listed NARIs, only seven (7) NARIs were qualified for the competition based on the criteria (NO 1 a.). The qualified participants were as follows: **INERA, RAB, BIOCROPS, CRI, NRCRI, KEPHIS and ZARI.**

Group A scoring the marketing strategy entries

Group B scoring the competition entries

Group C scoring the marketing competition entries

Discussion

In line with the guidelines, the groups submitted their score sheets, and shared experiences in the plenary. The following questions and comments were made:

Obed Mwenye (DARS-Malawi) noted a lesson learnt from other NARIs was that registration of customers at the point of buying/purchasing the vines is best for him to update the customer data base.

What are the challenges faced by the group in scoring? On behalf of Group B- Bernard Yada (Uganda) stated the group encountered difficulty in scoring because of lack of guide in some questions in terms of maximum and minimum answers one can provide. Some Koussao added that their group also faced a challenge in the scoring because scale of production differs among countries and NARIs.

The winners of the marketing competition were: **KEPHIS, NRCRI and ZARI.** They were each awarded a cash prize and a certificate.



4 Session 3: EGS Business Continuity

Moderator: Rosemary Kihiu Rapporteur: Obed Mwenye

During this session each country/institution (PI) representative made their 15-minute presentation focusing on sustainable sweetpotato pre-basic seed production business continuity: January 2019 forward.

The presentations highlighted the following:

- Fact sheet
- Progress with Threats-Opportunities-Weaknesses-Strengths strategies to strengthen business plan
- Next steps with implementation of business plan
- Message of commitment from Head of Institution

4.1 TIGRAY AGRICULTURAL RESEARCH INSTITUTE- ETHIOPIA

Presentation link: https://bit.ly/2Parlgz

Factsheet

Population	105,350,020 million
GDP	8.5 percent
Rainfall pattern/seasons -	The rainfall is unimodal but erratic in variability and amount within and among seasons in Tigray
Significance of sweetpotato to national food security	Sweetpotato is an important crop for at least 20 million Ethiopians. A total area of more than 10,000 ha and an average productivity of 15t/ha. Being disseminated fast in Tigray and Amhara regional states (traditionally cereal production area). It is climate resilient, crop that help tackle food and nutrition security.
Organization's mandate for EGS production	TARI is responsible to supply for early generation seed.
Product (pre-basic/basic)	Basic and pre-basic seed
TC Lab	Maintenance, Multiplication and virus testing
Screenhouse	Hardening /breeder seed multiplication
Varieties in production	Kulfo
Varieties in the pipeline	Ukr/EJU-10 , Ukr/EJU-30,VITAKabode
(EGS Production (seed) trends – 3 years)	320000, 220500, 500000
(Sales trends (seed)	3 years -118400, 121275, 275000

Discussion

Rosemary Kihiu: Impact of project and donor funding. Has there been an assessment of donor funding impact on sweetpotato production in Ethiopia and the region? Response. Sweetpotato especially OFSP is new in Ethiopia. Any impact is mostly due to CIP projects. OFSP is dominant. Now it is included in the strategy of the Bureau of Agriculture and Natural Resource Development. This has further increased the production trends of Sweetpotato.

Margaret McEwan: Good to see sweetpotato production trend going up. You have a turnover of the TARI DG who has been transferred to the federal level; how did you bring the new DG up to speed on the sweetpotato EGS business plan? Response. The former DG was a good advocate of SP. The new DG is also a good sweetpotato advocate. He is helping the commodity to look for funds and further directs the new DG to take sweetpotato business plan seriously.

Additional Questions

- How can you not get a separate ledger for sweetpotato seed sales?
- Are there regional sweetpotato production figures?
- The TOWS should reflect your progress over the 3 years, not general truth.
- Which pillars did you score low during your SWOT analysis and design your strategies?

4.2 INSTITUTO DE INVESTIGAÇÃO AGRÁRIA DE MOZAMBIQUE (IIAM)

Presentation link: http://ow.ly/a8Ry30mP7Fa

Factsheet

Population	28,861,863 million
GDP (PIB)	Country GDP is 804,464 x 10^6. Of this total, agriculture contributes 24% of GDP.
Rainfall pattern/seasons	The average annual rainfall is irregular and is concentrated in the period October / November to March, ranging from 600 – 1000 mm. In the coastal strip it is approximately 1000 mm and in the interior they are between 600 and 800 mm.
Sweetpotato national root production statistics	Sweetpotato ranks the 6th position in terms of cultivated area and produced after maize, cassava, Cowpea, rice and beans
Significance of sweetpotato to national food security	Sweetpotato is important for food. It is used for human consumption, leaves are used for curry and roots can be consumed fresh. Considered as a culture for food and nutritional security, they particularly support natural disasters. Often helping to generate family incomes among rural and suburban families.
Organization's mandate for EGS production	IIAM- Sweetpotato program
Product (pre-basic/basic)	Pre-basic seed – IIAM Sweetpotato program. Basic seed – IIAM through USEBA
Activities: TC Lab	Done by CIP
Screenhouse	One Screenhouse in Chókwe (IIAM) Two Screenhouses under CIP (IIAM e Nampula)
Virus testing	Done by CIP
Varieties in production	15 varieties released in 2011 and 7 varieties released in 2016
Varieties in the pipeline	There are several genotypes (clones) under evaluation at various stages of breeding trials in collaboration with CIP. 66 clones to be evaluated at final stage of release process
EGS Production (seed) trends – 3 years)	During the 3 years there were tendencies to increase the production of basic seed
Sales trends (seed) – 3 years	From 2015 (19,741 kg) to 2016 there was an increase of 46,975 kg (411,508 Mt) and 2016 to 2017 there was a slight decrease to 39,452 kg (385,534 Mt) and 2018 (12,464 kg)

Discussion

Margaret McEwan: Great to see the RF is above USD 14,000. The question is, is it really revolving? Yes it is, and as IIAM it is already doing planning for the production costs. The DG will now be deducting about 10% from the RF.

Jude Njoku: Am surprised with the rainfall pattern in Mozambique. How do you synchronise the calendar to meet the seed demands? You have mentioned the screenhouse construction, will the money come from the RF? Drought is a problem in Mozambique, in areas with rivers we encourage farmers to use residual moisture. We are also using Triple S and net tunnels. The money for the screenhouse will come from the RF. The screenhouse will be made mostly of local materials. **Bernard (addition response):** Getting roots for Triple S from the screenhouse will limit the number of roots for a bigger volume of vine production.

Good to see USD14, 000 in RF. Are you confident in systems to access account for funds? Yes, now we request about USD 3,000 to produce 15,000 kg under contract CCS-Italia.

How do you intend to synchronize your pre-basic seed production to other seed classes considering the prolonged dry season of 7 months? We do pre-basic seed and basic at IIAM, but this is risk because sometimes there is no costumers for other classes. E.g. for 2019 it's supposed to be raining season but up to now there is no rain.

What will happen to TC production when CIP leaves? IIAM has staff qualified to continue with TC. One technician was trained under SASHA project on TC.

Comments

- Good to see definite action plan to address weakness in the business plan
- Good to see that basic seed being institutionalized through USEBA and with decentralized production in Nampula
- Build capacity of DVMs on Triple S

4.3 RWANDA AGRICULTURE AND ANIMAL RESOURCES DEVELOPMENT BOARD

Presentation link: https://bit.ly/2SnDtgg

Factsheet

Population	12. 21 million (Google Rwanda population 2017)
GDP Rwanda	748.39 USD (2017)
Rainfall pattern/seasons	4.Long dry season, short rain season, short dry season, long and heavy rain season
Sweetpotato national root production statistics	Average yield (6.54 tons /ha)
Significance of sweetpotato to national food security	5th major crop in terms of cultivated area after beans, banana, cassava and maize.
Organization's mandate for EGS production	Increase production and productivity of OFS
Peer to peer review	Update on progress with TOWS or strategies to strengthen implementation of business plan
Going Forward	(projection of 10 years (2015-2024)

Discussion

David Talengera: Involvement of Army in Agriculture. Is it an act of promoting the planting of sweetpotato on time? Are they participating in production? Response: With the peace prevailing in the country, the army is used to promote some of the agricultural production. What is produced is used by the population. It is like a service to the nation.

Jude Njoku: How do you strengthen the RF seed committee? What new ratooning techniques do you mean? Response: The committee is there but not working as expected. The committee exists at headquarters, but now we want to have them involved in day to day running of the business plan. With staff turnover its sustainability is compromised. The idea is to maximize more ratoons at screenhouse that will enhance quality; this is more of a question of screenhouse management.

4.4 NATIONAL ROOT CROPS RESEARCH INSTITUTE

Presentation link: https://bit.ly/2Sk9eXl

Factsheet

Population	196,914,537 million
GDP	411 billion USD
Rainfall Pattern/Seasons	The rainfall pattern – weak bi-modal (short dry spell during August mostly around rainy forest zone).
Significance of Sweetpotato to National Food Security	Sweetpotato plays an important role in the economy of rural households because it acts as a major source of subsistence and considered to be a 'famine relief crop'
Organization's Mandate for EGS Production	Foundation seeds of sweetpotato and other root and tuber crops of economic importance for adequate availability of cleaned planting materials to farmers
Sweetpotato National Root Production Statistics	3.92 Million metric tons (FAOSTAT,2016)
Product (pre-basic/basic)	Pre-basic and Basic
Activities- TC Lab	Limited micro propagation of plantlets due to sub optimal condition of TC Lab.
Screenhouse	Hardening (limited) of plantlets in the screenhouse Production of foundation seed (pre-basic seed) Studies on improving multiplication ratio and reducing cost of pre-basic production
Virus Testing	Conduct virus tests using ELISA for different strains of sweetpotato virus diseases

Discussion

Nigeria consumes a lot of sweetpotato. Who are the other seed producers? Most of the vine producers are in the Northern region more especially during the dry season. It is in this region that most of the DVM are established in this region. There is more potential to expand the seed business e.g. Okano state which has good irrigation facility.

Being a large producer of sweetpotato roots in Africa I am trying to understand to what extent farmers' value quality planting materials. Are they buying in the use of quality planting materials of sweetpotato? Nigeria being the highest producer is mostly due to area of production; not the yield specifically. As an institute, we are doing a lot of demos and with a good protocol and take to farmers. The vegetable seed producers are different from the vine producers mostly due to the difference in the nature of the seed of the crops.

What proportion of production is OFSP quality planting material? Is the quality planting material penetrating the existing white fleshed production? The acceptance of the roots will drive the vines business. As a strategy there is no parallel line between the WFSP and the OFSP seed system or the informal and formal system. Currently the DVMs alone cannot suffice the seed demand for the country.

4.5 ZAMBIA AGRICULTURAL RESEARCH INSTITUTE

Presentation link: https://bit.ly/2P889Qp

Factsheet

Population	15.972 million
GDP	US$ 25.5 billion (2017 estimate)
Rainfall Pattern/Seasons	Zambia has three distinct seasons. Cool and dry – May to August Hot and dry – September to November Rainy season – December to April.
Sweetpotato national root production	231,881 MT(2016)
Significance to national food security	Food, nutrition and income security. Second most important root crop after cassava Grown by almost every rural household
Organization's Mandate for EGS Production	ZARI – Sole responsibility
Product (pre-basic/basic)	pre-basic & basic seed
TC lab	Mt. Makulu
Screen houses	Mansa & Msekera
Virus testing (Setosa)	Mansa, Msekera & Mt. Makulu (PCR)

Discussion

TOWS was not presented? ZARI left out the TOWS and it was not part of the EGS institutionalisation study. But will assess and add.

Where do you rank sweetpotato to other staple food crops? Difficult to rank sweetpotato. It is not part of the national production figures, once we did a priority setting for crops in the nation and it was found out that in some regions it ranks highly. Usually placed 6 or 7 after the dominant food crops.

Comments

- In terms of virus indexing I suggest to try ELISA test instead of Polymerase chain reaction. Polymerase chain reaction is expensive for business sustainability
- Promotion activities need to target different end users
- Necessary to make a survey to rank sweetpotato as a food crop in Zambia
- Need to increase strategies to make EGS business sustainable
- Need to have different varieties EGS for different market segments

4.6 INSTITUT DE L'ENVIRONNEMENT ET DE RECHERCHES AGRICOLE (INERA)

Presentation link: https://bit.ly/2Sl3blr

Factsheet

Population	18.65 million
GDP	12.12 billion
Rainfall Pattern/Seasons	900 – 1100 mm
Sweetpotato national root production	27366 tons in 2000 to 79119 tons in 2016
Significance to national food security	2% to 6%
Organization's Mandate for EGS Production	

Discussion

Capacity building. You have several exercises to be undertaken, do you have capacity to strengthen these aspects. What about finances?

We have partners in different areas including other research institutions, university department of business and marketing and the internal technical capacity. For the financial aspect we hope to continue to generate revenue, but we are expecting support from the West Africa Agricultural Transformation Programme (WAATP) a World Bank base programme that have component for OFSP value chain.

What are the progress of implementation of some of the strategies on the way forward of the business plan? Loyalty payments are their loyalties being limited to INERA to date?

We already have a seed production comity where our seed business is attached led by the Director of station. Seed production progress and marketing are discussed during the sessions hold three time the year (1st for planning for production, 2nd after harvest and 3rd after sold). Loyalty payments are accepted by seed companies but discussion still on going on the bases for payments. The Nation Seed Service is coordinating the discussion.

You have said you will be developing protocols for inspection? What are you using now? Is INERA mandated to develop the standards?

INERA drafted the protocol base on the best knowledge we have on sweetpotato early generation seed production and we submitted it to the National seed comity for their approbation and use**.**

Do you think that including a specialist on marketing will help? Or targeting the potential business institutions? For sure if a business specialist is involved for seed production this will be a good progress. However, if he has to be hired then, INERA headquarter could be taking it into account and therefore he will not be only for sweetpotato. Recruitment sometime not so easy so that the other option is to count on business institution for planned training of internal staff on business.

I did not see, weakness and strength on your Threats-Opportunities-Weaknesses-Strengths?

Threats	**Opportunities**	**Weaknesses**	**Strengths**
- Stop state subsidies (purchase and free distribution of semen) - Competition due to the opening of the market - Distribution of poor-quality seed by other seed actors - Low financial capacity of producers	- Existence of organized seed companies with a high seed demand. - Important institutional demand - External quality assurance by seed inspectors - Existence of a regional seed regulation (ECOWAS-CILSS) - Open sub regional market	- Random supply system - Lack of an elaborate business and marketing plan - Seed production costs are not elaborated	- Existence of a link with customers - INERA has qualified staff - The institutional will the business of the seed - Certified seed production techniques exist

4.7 SOUTHERN AGRICULTURAL RESEARCH INSTITUTE

Presentation link: https://bit.ly/2TYQ4rH

Factsheet

Population	107,846,010 million
GDP	$80.56 billion, GDP PP = $794
Rainfall pattern/seasons = Two/Binomial,	Belg (short rainy season) Meher (long rainy season)
Sweetpotato national root production statistics	production in tons, 2015/2016= 1,372,326.82 production in tons, 2016/2017= 1,939,761.19 production in tons,2017/2018= 1,848,413.74
Significance of sweetpotato to national food security	High, (#2, area coverage & #1 production)
Organization's mandate for EGS production	Pre-basic and basic
Product (prebasic/basic)	Both pre-basic and basic
Activities: TC Lab	In-vitro cleaning, micro propagation, acclimatization
Screen house	Hardening
Virus testing	NCM-ELISA
Varieties in production	Kulfo, Awassa-83, Hawassa-09
Varieties in the pipeline	4 candidates (Ukr/Eju-10, Ukr/Eju-13, Vita and Kabode)
EGS Production (seed) trends – 3 years)	2016/2017 Basic seed production 2.8 million & 220,000(pre-basic) 2017/2018 Basic seed production 2.1 million & 240,000(pre-basic) 2018/2019 Basic seed production 2.0 million & 120,000(pre-basic)
Sales trends (seed) – 3 years	Basic seed sale (number of cuttings) (2016/2017) =1,350,000 Basic seed sale (number of cuttings) (2017/2018) =2,001,887 Basic seed sale (number of cuttings) (2018/2019) = 505,400

Discussion

Why is it not possible to have sweetpotato funds in the RF in a separate sub-ledger so that they can be separately tracked? It is just a system that our centre is applying. The proceeds from all seed sales (sweetpotato, cassava, beans, maize, forage crops etc.) goes to the same account and recorded accordingly. But we can discuss with the centre management and try to have a separate sub-ledger for sweetpotato seed sales. But it is difficult to have a separate/sub account for sweetpotato.

Good potential for dual purpose varieties (livestock). Are these dual varieties in the seed system? Yes. A variety called Awassa-83 is a dual-purpose variety.

How long does it take to access funds especially that the institution cannot access the government account? It takes 6-7 months to access the fund from government (especially that of the income generated from seeds sale).

Comment: In the absence of the peer review and TOWS; Focus on marketing strategies and business plan enhancement skills (comment).

4.8 NATIONAL CROP RESOURCES RESEARCH INSTITUTE

Presentation link: https://bit.ly/2SmkeDQ

Factsheet

Population	34.6 million (Last census 2014)
GDP	25.89 billion US$ (per capita 773 US$ vision 1,039 US$)
Rainfall pattern/seasons	Biennial (two seasons with peak March – May, September – November peak)
Sweetpotato national root production statistics	Area: 455,415 Ha; Production: 2,373,020 tons (2017)
Significance of sweetpotato to national food security	Third most important crop (3rd and 4th producer in Africa & Global resp). Per capita consumption: Av 82 Kg. Caloric intake 215 Kcal/person/day
NARO mandate for EGS production	To coordinate, oversee and guide EGS research in Uganda
Product (prebasic/basic)	TC plantlets/ screen house cutting
Varieties in production	NASPOT 12 O; NASPOT 13 O; Dimbuka-Bukulua (2016 & 2017)
Varieties in the pipeline	NASPOT 8, NASPOT 9 & 10 O, NASPOT 1
EGS Production (seed) trends	– 3 years) 64,000; (2016) 64,000 (2017)
Sales trends (seed) – 3 years	6,080,000 Ugshs (2016); 3,150,000 Ugshs (2017)
Peer to peer review	Update on progress with TOWS or strategies to strengthen to implement business plan

Discussion

Since you have said farmers aware of requirement for clean planting material. How do you take advantage of that to enhance the business plan? Response: Yes that is true. It's an opportunity as well as a threat to NaCRRI. The threat is unscrupulous vendors are now taking advantage and sale sweetpotato seed that is not certified/compromising the quality.

Who are the potential private partners for basic and pre-basic? The potential private partners for basic include current small-scale sweetpotato vine multipliers, crop seed cooperatives and farmer group. The pre-basic partners will include BioCrops and other tissue culture laboratories dealing in production of seeds of vegetative crops.

What is the per capital consumption of sweetpotato for Uganda? The per capita consumption of sweetpotato is currently estimated at 85 Kg/person/year.

What are the benefits of the military contribution to the EGS? The Operation Wealth Creation (OWC), the military wing charged with mandate of distribution seeds to farmers. The OWC will provide a huge

market for certified 1 if they involve in distribution of sweetpotato seeds. This will create demand for preceding seed classes (pull demand).

Your admin and finance were your weakest pillar. What were the issues? The way admin and finance work is that they have laid down procedures which never incorporated the business plan (RF); now changes are happening. Up until then these will now be reported.

Comments

- You need to do a lot more on awareness creation of the need of quality seed
- Excellent that you have included EGS production in workplan and budget for 2019/2020.
- Good that NaCRRI has now started including the sweetpotato business plan in the Ministry's annual work plan
- Great presentation and thinking outside the box. A lot of strategies to forge ahead

4.9 BIOCROPS LTD

Presentation link: https://bit.ly/2QuH8LR

Factsheet

Population	44,737,515 Million
GDP	25.9 Billion USD (World bank, 2018)
Rainfall Pattern/Seasons	Bimodal: central, west and part of eastern region Unimodal: Northern region
Production and sale of vegetative seeds	Banana Cassava Potatoes Sweetpotato
Maintenance and bulking virus free vines	In vitro pre-basic production, Basic seed production, Quality control using Ipomoea setosa
Varieties	Ejumula, Kabode, Kakamega, Vita, Naspot 8, Naspot 11, Naspot 12, Naspot 13

Discussion

Nigeria: Was there a project of cleaning up white flesh sweetpotato varieties, is it not going against the promotion of OFSP seed systems

Additional Questions

- The production trend as presented by BioCrops is confusing
- Are there multipliers linked to value addition entities to increase seed sales?
- In quality control, do you use only I. setosa for virus diagnosis? There are other viruses that become asymptomatic and need specific antibodies to detect

4.10 TANZANIA AGRICULTURAL RESEARCH INSTITUTE-KIBAHA

Presentation link: https://bit.ly/2QtJbjl

Factsheet

Population	57.31 million by 2017, 54,199, 163 (2018)
GDP	52.09 billion (2017) = 7.1%
Rainfall pattern/seasons	Unimodal and Bimodal (Short rain (October, November), Long rain (Mid, March, April and May)
Sweetpotato national root production statistics	3.8 million tons (FAOSTAT2016)
Significance of sweetpotato to national food security	3rd. most important root and tuber crop, household food security crop used as cooked and processed, Nutritional value
Organization's mandate for EGS production	Production of breeder seed, pre-basic and basic seeds
Product (pre-basic/basic)	Both
Activities: TC Lab	Not started but in future the plans are in place
Screenhouse	Yes
Virus testing	Facilities for molecular diagnostic lab are available hence possibly in future we will be able to do
Varieties in production	Mataya, Kiegeya, Kakamega, Kabode, Jewel, Ejumula, Naspot 11, Polista, Naspot 12, Vitaa and Naspot 13
Varieties in the pipeline	Naspot 13, SPKBH 06/676, SPKBH03/03, Ex-Luambano, Jewel, Alveria, Jukale, Berita, Katebe, UKGSP690P2008, UKGSP2005/05,Naspot 11, New Dimbuka
EGS Production (seed) trends – 3 years	708,442
Sales trends (seed) – 3 years	Tsh 26,763,735
Peer to peer review:	Not done

Discussion

Other than root consumption what other factors contributes to large production of sweetpotato in the country? Response: To push production, local processors who are into value addition are also pushing the production.

What was the major contributor to a number of processors using sweetpotato? Most of the processors especially those who process children food previously they were making it by mixing with Ground nuts but due to the health alert (aflatoxins in ground nuts) they have turned to use OFSP as one of the ingredients instead of ground nuts. The increase consumption of added value OFSP to make breads, pan cake etc.

Trust on TARI's EGS is good. But is there any mechanism to ensure that every producer gets initial seed from TARI? Currently the mechanism is to endorse the law to make sure multipliers are registered and being monitored and certified by TOSCI. They are pushing it so as it happen though it is a slow process as it involves different govern institutions such as local government to make move fast.

How have you advocated to TOSCI to apply lessons learned from seed system approach under cassava to increase branding of the quality sweetpotato seed? TOSCI is working hand in hand with research institutes and other stakeholders to make sure farmers get high quality planting materials including branding it.

How do you manage quality in the absence of virus testing? We are doing rouging and making sure that we are maintaining there are no contamination in the screen houses.

4.11 DEPARTMENT OF AGRICULTURAL RESEARCH SERVICES

Presentation link: http://ow.ly/ChFN30mP7G7

Factsheet

Population	19,196,246 million
GDP	$6.206 billion (2017 estimates)
Rainfall pattern/seasons	UNIMODAL (starting from November – April)
Significance of sweet potato to national food security	- Food crop –forth most important food crop after maize, cassava & rice - Cash crop-root and vines sales - Food security crop-priority crop for government
Organization's mandate for EGS production	Production of pre-basic and basic seed to increase availability of quality sweetpotato vines of improved varieties that will produce high yields, quality roots, wide consumer acceptability, and long shelf life
Product (pre-basic/basic)	Pre-basic and basic seed
Activities: TC Lab	Initiation of plantlets Rapid micro propagation Maintenance of clean planting material
Screenhouse	Hardening of TC plantlets and multiplication of pre-basic cuttings
Virus testing	Grafting on I. Setosa and NCM-Elisa virus indexing
Varieties in production	White/cream fleshed Sweetpotato: Tainoni, Lunyangwa, Kakoma, Salera, Semusa, Kenya, Mugamba, Kajiyani (New)Sakananthaka, Yoyera, Sungani, Nyamoyo Orange-fleshed sweetpotato: Kamchiputu, Zondeni, Kadyaubwelere, Mathuthu, Chipika, Kaphulira, Anaakwanire, Royal Choice (New), Mtetsanjara (New) Msungabanja (New)
EGS Production (seed) trends – 3 years	PRE-BASIC (CUTTINGS) / BASIC (CUTTINGS) 2015-16: 11,479 2016-17: 387,200 2017-18: 15,465 / 425,500
Sales trends (seed) – 3 years	PRE-BASIC / BASIC 2015-16: 77,000 MK 2016-17: 1,626,000 MK 2017-18: 144,000 MK / 1,898,500 MK

Discussion

Any chance of getting into contracts with root producers supplying to processors? This is what DARS wants to get into. We hope after proper advertising and publicity more root producers will be coming and will engage them into contract discussions.

What are DARS expectations in terms of sales and revenue? The sales and revenue outlook for the season is looking very good. Already we have sold both pre-basic and basic seed to vine producers.

4.12 CROP RESEARCH INSTITUTE – GHANA

Presentation link: https://bit.ly/2Rr6jMr

Factsheet

Population	29 million
GDP	USD 51 billion
Rainfall pattern/seasons	Two rainy seasons occur, from April to July and from September to November throughout the seven southern regions (1100mm to 2100mm). The three northern regions experience a unimodal rainfall in May to November with annual rainfall range of 750 to 1050mm
Significance of sweetpotato to national food security	The crop is grown for food and nutrition security.
Organization's mandate for EGS production	CSIR-CRI is mandated to develop and transfer basic and pre-basic seeds to farmers, other institutions, NGO's and industries.
Product (prebasic/basic)	Basic and pre-basic sweetpotato seeds
TC activities	In vitro introduction and establishment: which begins from stage 0 where Mother plants obtained from the field or the Breeders collection is quarantined in a confinement and regenerated to sprout new shoots for meristem excision. Thermotherapy: Regenerated plantlets from meristem tissues are subjected to heat treatment as a method of cleaning for virus elimination. In vitro multiplication: Rapid multiplication of clean planting materials obtained after indexing for bulking to be transferred to screenhouse
Screenhouse	Acclimatization/Hardening: Clean materials from tissue culture are prepared and transferred to the screenhouse to gradually wean these fragile plantlets from the lab. In vitro plantlets are hardened in humidity chambers for 2 weeks and transferred into chambers for further growth and establishment.
Varieties in production	CRI-Apomuden, CRI-Ogyefo, Santompona, Otoo, CRI-Ligri, Faara, Sauti, CRI-Bohye Dadanyuie Tiebele.
Varieties in pipeline	Nangungungu, Obare, Tu purple, Mofara, Gavana

Discussion

How do you incorporate smart agriculture in the business model? This is part if the breeding objectives to incorporate drought tolerance traits; irrigation etc.

Is sweetpotato included in the number of seed being sold at CRI? I see CRI has a business unit, whose is the unit being linked to the business development centre. The business unit is working more as a project and have their specific target.

Billboard to be placed at the entrance of the institute

Comment: I commend CRI for the good and elaborate presentation. It shows some seriousness.

4.13 KENYA PLANT HEALTH INSPECTORATE SERVICE

Presentation link: https://bit.ly/2E2MOqw

Factsheet

Population	49.7 million (2017)
GDP	74.94 billion USD (2017)
Rainfall pattern/seasons	March – May (Long rains), October – December (Short rains)
Sweetpotato national root production statistics	1.2 million Mt annually (FAOSTAT 2016)
Significance of sweetpotato to national food security	Resilience to climate change Higher nutrition value (OFSP) High yielding
Organization's mandate for EGS production	Produce clean sweetpotato pre-basic planting material through Tissue culture involving virus indexing and clean up. To supply DVMs with sweetpotato pre-basic seed for multiplication thereby ensuring quality vines for root production in Kenya
Product (prebasic/basic)	Pre-basic
Activities: TC Lab	Initiation, Virus elimination and multiplication
Screenhouse	Multiplication
Virus testing	NCM ELISA for virus testing
Varieties in production	Kabode, Vitaa, Mugande, Chebolol, Kakamega, Naspot 12, Naspot 13, Sumaiya, Carrot C, Carrot Dar (as at October 2018)
Varieties in the pipeline	Bungoma Variety and any other variety on demand
EGS Production (seed) trends – 3 years	2016 – 27,370 cuttings, 2017 – 114,425 cuttings 2018 – 16,111 cuttings
Sales Trends (seed) – 3 years	2016 – Ksh 1,179,500 2017 – Ksh 1,774,410 2018 to 19th October – Ksh 236,850

Discussion

Are you satisfied with the quality of planting materials being sold? So far, the clients we have sold the vines to have not yet complained about the quality.

We have seen a number of NARIs supporting processors. Is there anything that you can learn from the other NARIs to be replicated in Kenya; so that farmers can supply the ready super market? KEPHIS is currently working with some processors in Nairobi who already have preferred varieties and we have started multiplication of such varieties.

Why are you presenting feed the future as a donor and not a buyer of the planting material? We need to clarify this, we mentioned that KEPHIS sweetpotato program benefited from other KEPHIS Programs supported by USAID-feed the future, but we have not sold materials directly to the donor.

How can the regional centre of excellences technologies be rolled out to other countries? With support, KEPHIS is willing roll out these technologies to other countries through trainings and in any other way.

5 SESSION FOUR: PROGRESS ON IMPLEMENTATION OF SEED STANDARDS AND INSPECTION

Moderator: Margaret McEwan: Rapporteur Simon Zziwa

5.1 Sweetpotato seed certification: how do we bridge the implementation gap?

Quality sweetpotato planting material (pest and disease free, of known source and varietal purity) can contribute to higher productivity. An inspection process can:

- Provide assurance to farmers & "protection" from unscrupulous seed dealers
- Reduce risk of spread of disease and pests if PM is moved between different locations
- Provide recognition to multipliers

Table: 1: Status of official approval of sweetpotato seed standards (June 2018)

Country	Formal (Basic, Certified)	QDS	Implementation status
Ethiopia	Gazetted	Gazetted	Under national roll-out, **but limited capacity**
Uganda	Drafted and tested. Awaiting accreditation by MAAIF.	Included	Under implementation, using private seed companies (e.g. BioCrops)
Kenya	Gazetted	Not allowed, but discussions on definition of "standard" seed in progress; discussion on separate regulations for VPCs	Seed inspectors are inspecting registered seed merchants only
Tanzania	Gazetted	QDS is not a seed *class* but a category of seed. Ready. Gazetting of QDS will be done for all crops	With some DVMs with project support. **Capacity required**

Country	Formal (Basic, Certified)	QDS	Implementation status
Rwanda	**Gazetted**	Included	With support from **projects**.
Mozambique	**Gazetted**	Only C1 (& C2)	Internal inspections. **Capacity required.**
Country	**Formal (Basic, Certified)**	**QDS**	**Implementation status**
Malawi	Draft prepared; awaiting gazetting	Awaiting gazetting	In progress with **project** support. Inspectors trained in collaboration with Roots & Tuber Crops Trust (2017).
Zambia	**Existing sweetpotato seed standards, have been revised and approved**	QDS is a *class* of seed, produced from QDS or higher class (green label)	Training in inspections implemented annually and inspections conducted.
Nigeria	Drafted, under review by NASC. Expected ratification	QDS not allowed as class so treated as C2.	Not started
Ghana	Drafted with Jumpstarting project support.	Officially the regulatory body does not certify vegetatively propagated materials.	With some DVMs with **project** support. **Capacity required**
Burkina Faso	Under review	Included	Limited testing in Eastern Region

5.2 Group work

The NARIs were split into 4 groups to discuss and present the seed standards and inspection procedures. The groups were divided as follows:

- Group 1 TARI-Kibaha, INERA, and RAB
- Group 2 ZARI, DARS and IIAM
- Group 3 NaCRRI, CRI, NRCRI
- Group 4 Ethiopia (SARI and TARI) and KEPHIS

Presenter	Ambilikile Mwenisongole, Agricultural economist		
GROUP ONE			
Country	**TARI-Kibaha**	**INERA**	**RAB**
No. of registered multipliers	0 (multipliers present but not yet registered)	1 (Registered) 16 (In process of being registered)	13 (Registered) 95 (In the process)
No of inspection conducted 2018	0	1	2
Successes	1) - Increased access to certified sweet potato planting materials. 2)-Approval of protocol to use by TOSCI. 3)- Smooth delegation of the protocol to the district crop health inspectors by TOSCI	1)- Validation of the inspection protocol with regulators 2)- Access of clean planting materials from Research institutes by the multiplier	1)- Seed standards approved and gazetted 2)-The standards are in use 3)- The approved standards have provided a base for development of cassava inspection protocol 4)- Formation of new RICA inspectorate institutions
Challenges	1)- High costs of inspection, registration and other related costs have hindered many multipliers from conforming with the set regulations 2) - Inadequacy of skilled crop health inspectors. 3)-Limited budget allocation	1)- Presence of many un-authorized sweep potato seed Multipliers with unknown source of seed 2)-Due to limited funds, tracking the quality of planting materials is very difficult	1) - Slow implementation processes. 2)-Inadequacy in the number of competent inspectors. 3) - Negative attitude by the community in as far as regulations are concerned.
Changes needed			
Parameter	1) - Isolation distance based on white flies and weevil movement should be revised based on agronomic differences of the respective countries. 2) - In presence of barrier crops, the Isolation distance should be reduced.		
Tolerance levels	No changes needed	Still in validation process	No changes needed
Inspections procedures	1)-Inspection to start from Pre- basic. 2) - Reduce on the number of inspections to only one for certified and QDS.		
Cost of inspection	Multipliers should pay for inspection	Government should subsidize the cost.	Government should subsidize the cost.
No of multipliers to be inspected	All registered multipliers must be inspected		

GROUP TWO			
Country	**ZARI**	**DARS**	**IIAM**
No. of registered multipliers	90 (Males: 37, Females: 53- from one district)	22 (From one station)	None
No. of inspection conducted 2018	0	0	0
Successes	1)-Training of licensing inspectors	1)-Licensing inspectors trained. 2)-Willingness of farmers to pay for inspection as a result of intensive sensitization. 3)-New seed policy includes root and tuber crops has been set.	1)-Sweet potato seed standards have been gazetted.
Challenges	1)-Long distances to seed multipliers with a limited budget 2)-Limited number of seed inspectors	1)-High costs of inspection due to the sparse distribution of seed multipliers with small fields. 2)-Limited number of competent crop inspectors	1)-Continuous refusal of multipliers to pay for inspection cost 2)-Limited number of competent sweet potato seed Inspectors 3)-Failure to implement the set standards and regulations
Changes needed			
Parameter	No changes needed	No changes needed	1)-Isolation distance should be reduced. 2)-At least three inspection phases should be considered at pre-planting, vegetative stage and harvest
Cost of inspection	Government pays	Sweet potato seed multipliers pays for the costs of inspection	Government pays
No of multipliers to be inspected	All registered multipliers must be inspected		
IPR	-Mechanism of funds collection still a challenge -Contracts are difficult to honor		

GROUP THREE			
Country	**NaCRRI**	**CSIR-CRI**	**NRCRI**
No. of registered multipliers	27	0	0
No of inspection conducted 2018	2	4	0
Successes	1)-Guide lines for sweet potato seed inspection and certification protocol drafted and reviewed. 2)-Training of inspectors in selected local governments 3)-Approval of sweet potato seed inspection protocol 4)-Sensitization of seed multipliers about the set protocol	1)-Sweetpotato seed inspection protocol drafted. 3)-Sensitization of farmers about the new sweet potato seed inspection regulations	1)-Guide lines on sweet potato seed inspection drafted, reviewed, and approved 2)-Sensitization of multipliers on sweet potato seed regulations 3)-Training of compete sweet potato seed inspectors
	1)-Inadequate number of competent sweet potato seed inspectors 2)-Inadequate funds allocated towards implementation of sweet potato seed inspection regulation 3)-Negative attitude of sweet potato seed multipliers toward the inspection regulation 4)-Bureaucratic procedures required to approve the set sweet potato seed inspection regulations mainly in Nigeria 5)-High costs of inspection most especially in Uganda. 6)-Presence of middle men who compromise the quality of planting materials 7)-Inadequacy in numbers of formerly registered sweet potato multipliers 8)-Absence of policy framework to guide inspection (Ghana) 9)-Poorly harmonized seed classes (Nigeria)		

Country	NaCRRI	CSIR-CRI	NRCRI
Challenges Changes needed			
Parameter	1)-Reduction of isolation distance from 50m to 30m. 2)-Reduction of separation distance between varieties from 4m to 3m. 3)-Pre-basic seed should be for tissue culture only	None (Still in draft form)	1)-Reduction of isolation distance from 60m to 30m 2)-Change statement ''variety add-mixture'' to ''genetic purity'' 3)-Completely disqualify fall army worm as a sweet potato pest. 4)-Changing of QDS to certified 2 5)-Reduction on the number of inspections from 3 to 2 6)-Reducing the number of ratoons to not more than three
Cost of inspection	1)-Should be covered by sweet potato seed multipliers at a moderate cost 2)-Sensitization about sweet potato seed quality should be intensified	Should be government	Should be covered by both sweetpotato seed multipliers and government at a modest cost.
No. of multipliers to be inspected	All registered multipliers must be inspected irrespective of their production capacity		
IPR	Across the three countries, the issue of IPR has not been at the fore-front, and therefore, the following were recommended: 1)-Setting up of laws and policies to guide and regulate intellectual property rights 2)-Advocating for IPR among the masses 3)-Penalizing those violating guidelines and regulations related to intellectual property		

GROUP FOUR		
Country	**Ethiopia (SARI and TARI)**	**KEPHIS**
No. of registered multipliers	16	1
No of inspection conducted 2018	3	2 phytosanitary inspections, no seed inspections
Successes	1) Approval of full certification for SP (EGS & QDS) – ES 04071:2016 2) The presence of federal & regional regulatory bodies The regional regulatory body has more than four laboratories in different parts of the country	1) Seed regulations renewed and gazetted in 2016 to include SP under mandatory certification 2) SP certification protocol renewed by stakeholders 3) Current seed regulations are under review to appropriately cover vegetatively propagated crops 4) Seed policy is under review
Challenges	1) The inspectors are not specialized in different crops (lack of technical skills) 2) The market is largely dependent on institutional buyers which is affecting the sustainability of the seed system 3) Diseases and insect pests are affecting the quality of vines and roots 4) Shortage of land for multiplication of quality seeds 5) Shortage of skilled human power and staff turn over	1) Current seed regulations not properly cater vegetatively propagated crops 2) Low uptake on registration of seed merchants 3) High registration costs (USD 750 4) High cost of certification/inspections (USD 2.8 per hectare + transport fee USD 0.5 per KM)
Changes needed	1) No complain so far	1) Recently reviewed by stakeholders
Implementation of inspections	1) Requirements for registration as a VPCs/SP formal seed multiplier should be different from field crops such as cereals and legumes 2) The capacity of the regulatory body need to be strengthened in terms of lab facility and technical training	1) Review regulations to properly cater for VPCs since the current regulations are biased to cereals and legumes 2) Consideration to be made to review the cost of registration and inspection
Recommendations on IPR	1) The PBR is in approved but not started working	1) PBR is protected/working

6 SGA PARTNER PROGRESS REVIEW MEETING EVALUATION REPORT

Srinivasulu Rajendran

Introduction

Sweetpotato Seed System CoP Tenth Consultation meeting was held on 13th - 15th November 2018 at Nairobi, Kenya. Participants were requested to evaluate the quality of the sessions and the general logistics that went into setting up the meeting. A total of 27 participants participated in the meeting, and responded to the evaluation. The evaluation was carried out using paper and the data subsequently digitized using CSPro and analyzed using statistical software called STATA Version 14.2.

Participation by age, gender and organization

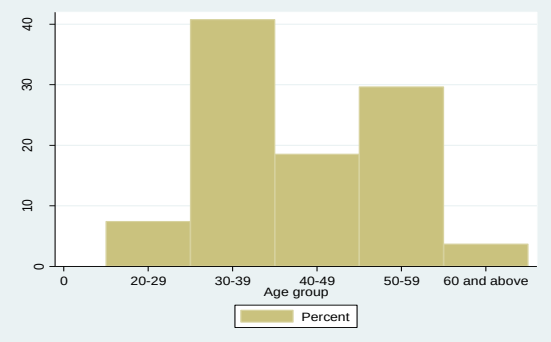


Figure 1 Age distribution

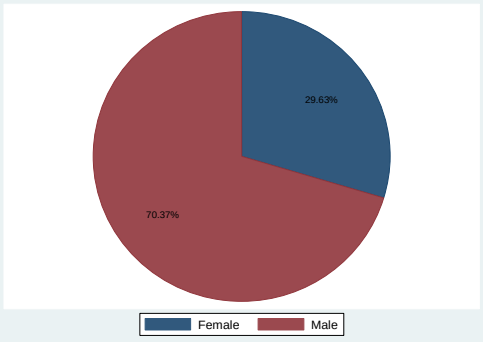


Figure 2 Participants by sex

The age of the participants ranged from 25 to 62 years. Majority of the respondents were male at 70%, and 30% female.

Meeting content

Majority of the participants (93%) said that most of their expectations were met during the meeting. 92% of the participants felt that the quality of the meeting in terms of technical content was at least good (Table 1).

Response Indicator	Frequency	Percent	Cum.
Alright	2	7.41	7.41
Good	16	59.26	66.67
Very good	9	33.33	100
Total	27	100	

Table 1: Response on quality of the SGA meeting in terms of technical content of the presentations

Usefulness of the silent feedback approach

81% of participants felt that the usefulness of session 1 "our journey – sustainable EGS production" was at least good and above (Table 2a). 33% of the respondents felt that the 2nd session on peer review of marketing strategy competition entries, as good (Table 2b), and 60% of the respondents felt that the session was very good. 41% of the respondents felt that the 3rd session "EGS Business continuity" was good and 52% of respondents felt that it was very good (Table 2c). Finally, session 4 on "seed regulatory frameworks", 59% of the respondents felt that it was good, 11% of the respondents felt that it was very good.

Table 2a: Response on the usefulness of the session 1 (Narrative reports and outcome stories)

Response Indicator	Frequency	Percent	Cum.
Poor	1	4	4
Alright	4	15	19
Good	6	22	41
Very good	16	59	100
Total	27	100	

Table 2b: Response on the usefulness of the session 2 (Narrative reports and outcome stories)

Response Indicator	Frequency	Percent	Cum.
Alright	2	7	7
Good	9	33	41
Very good	16	60	100
Total	27	100	

Table 2c: Response on the usefulness of the session 3 (EGS Business continuity)

Response Indicator	Frequency	Percent	Cum.
Alright	2	7	7
Good	11	41	48
Very good	14	52	100
Total	27	100	

Table 2d: Response on the usefulness of the session 4 (Seed regulatory frameworks)

Response Indicator	Frequency	Percent	Cum.
Poor	1	4	4
Alright	7	26	30
Good	16	59	89
Very good	3	11	100
Total	27	100	

Meeting organization (logistics and communication)

93% of the participants felt that the meeting organization was either good or very good.

Table 3: Response on the logistic and communication arrangements

Response Indicator	Frequency	Percent	Cum.
Alright	2	7	7
Good	11	41	48
Very good	14	52	100
Total	27	100	

Feedback on sessions

The respondents reported most two useful sessions out of the four sessions they participated in during meeting time. 37% of the participants felt that session 1 on "our journey-Sustainable EGS production" was the most useful session, followed by Session 3 "EGS business continuity". Participants were also asked to respond on 2 least useful sessions. Only 12 participants responded to this question. Out of the 27 respondents only 8 felt that session 4 "seed regulatory frameworks" was the least useful.

Three areas of improvement suggested by the participants were allocation of more time for discussion, presentations and more days for the meeting which includes field visits (44%). 2nd area for improvement is implementation of seed standards in various countries (16%) (Table 6).

Table 4a: Most useful two sessions: Percentage of respondents on 1st useful session out of 4 sessions

Session Name	Frequency	Percent
Session 1: Our journey-Sustainable EGS	10	37
Session 2: Peer review of marketing strategy	5	19
Session 3: EGS Business Continuity	8	30
Session 4: Seed Regulatory Frameworks	1	4
Missing	3	11
Total	27	100

Table 4b: Most useful two sessions: Percentage of respondents on 2nd most useful session out of 4 sessions

Session Name	Frequency	Percent
Session 1: Our journey-Sustainable EGS Production	4	15
Session 2: Peer review of marketing strategy	6	22
Session 3: EGS Business Continuity	10	37
Session 4: Seed Regulatory Frameworks	1	4
Missing	6	22
Total	27	100

Table 5: Least useful two sessions: Percentage of respondents on 1st least useful session out of 4 session

Session Name	Frequency	Percent
Session 1: Our journey - Sustainable EGS production	1	4
Session 2: Peer review of marketing strategy	3	11
Session 4: Seed Regulatory Frameworks	8	30
Missing	15	56
Total	27	100

Table 6: Top two areas for improvement: 1st area for improvement (open-ended questions and multiple answers)

Area for the improvement	Frequency	Percent
Accommodation	1	4
Communication through emails; reduce the number of emails	3	12
Customer feedback in marketing and follow-up & Marketing strategies	3	12
More time required for presentation and more days for SGA meeting which includes field visits	11	44
Implementation seed standards	4	16
Number of presentations to be limited	1	4
Provide a pointer to use on projector	1	4
Revolving fund implementation	1	4
	25	100

The participants were asked to list 3 activities that NARIs would implement to ensure continuity of sweetpotato EGS production from 2019 onwards. Most of the participants reported that they would focus on introducing innovative marketing strategies to attract more customers. The marketing strategies include radio shows, participating in agricultural shows, demonstration of plots to showcase quality seed, maintaining a customer database, collecting cost data, and pricing strategies to attract more customers. In addition, they would also focus on public private partnership models, implementation of seed standards etc. to ensure sustainable EGS production in the long-run (Table 7a). Majority of the respondents felt that the 2nd activity to implement would be marketing strategies which include promoting EGS materials through social media and demonstrating quality seed to farmers (Table 7b). The 3rd activity they felt they would implement was investing more on marketing activities and establishing monitoring and evaluation systems for EGS production.

Table 7a: Three activities that NARIs will implement to ensure continuity of sweetpotato EGS production from 2019 onwards (open-ended questions): 1st activity.

Activity	Frequency	Percent
Implementing and improving marketing strategies	18	69
Advocate the usefulness of seed standard	1	4
Contract farming	1	4
Increase basic production through more innovative technology	1	4
Partnership with private/public institutions	1	4
Improving Revolving fund	2	8
Seed regulation implementation	2	8
Total	27	100

Table 7b: Three activities that NARIs will implement to ensure continuity of sweetpotato EGS production from 2019 onwards (open-ended questions): 2nd activity.

Activity	Frequency	Percent
Apply some of the good marketing strategy	1	4.76
Billboards promotion	1	4.76
Continue with farmers training and awareness of usage of quality seed	1	4.76
Customer database	1	4.76
Customer feedback	2	9.52
Demos to show advantages of quality seed	1	4.76
Develop marketing strategies	1	4.76
Engage management on seed systems	1	4.76
Improving marketing strategies	1	4.76
Increase marketing activities	1	4.76
Increase production of EGS	1	4.76
Keeping records/data	1	4.76
Marketing promotion and planning	1	4.76
Marketing strategy	1	4.76
Private partnership so as to increase revenue	1	4.76
Promoting our activities online/social media	1	4.76
Rewarding of staff to avoid turn over	1	4.76
Segregating production records to ease costing	1	4.76
Update the marketing strategy	1	4.76
training of those implementing EGS	1	4.76
Total	21	100

Table 7c: Three activities that NARIs will implement to ensure continuity of sweetpotato EGS production from 2019 onwards (open-ended questions): 3rd activity.

Activity	Frequency	Percent
Business module introduced	1	6.25
Continue with marketing and promotional activities	1	6.25
Cost monitoring with proper amounts	1	6.25
Government involvement	1	6.25
Implementing of business plan	1	6.25
Improve customer database	1	6.25
Improve marketing strategies	1	6.25
Invest more in marketing and promotional activities	1	6.25
Marketing strategies	1	6.25
More production in screen houses to reduce the cost at TC plantlet level	1	6.25
Promotion through mass media	1	6.25
Promotion through social media	1	6.25
Sign contracts with multipliers	1	6.25
Training on DVMs on marketing	1	6.25
Updating customers databases and follow up with them	1	6.25
Conduct M&E for the EGS activities	1	6.25
Total	16	100

Overall, participants felt satisfied with the meeting outcomes and felt the need to maintain the community of practice.

ANNEXES

AGENDA

Sweetpotato for Profit and Health Initiative-
Regional Technical Support Platform for East, Central and Southern Africa
Sweetpotato Seed Systems Community of Practice: Tenth Consultation- Sustainable Pre-basic Seed Production – Progress Review. Pride Inn, Rhapta Rd Nairobi
12-15th November 2018 AGENDA

TIME	SESSION	Responsible
	ARRIVALS: Sunday 11th November: BioCrops; NaCCRI; TARI-Tz; IIAM; NRCRI	Bernice Wairimu and Chris Kioko
MONDAY 12TH NOVEMBER – Individual review of and business plan and final narrative technical report		
8.30 -12.30	Review of business plans and final narrative technical report	BioCrops; NaCCRI; TARI-Tz; IIAM; NRCRI Rosemary Kihiu, Srini Rajendran, Margaret McEwan,
Lunch		
14.30 – 16.30	Review of business plans and final narrative technical report	BioCrops; NaCCRI; TARI-Tz; IIAM; NRCRI Rosemary Kihiu, Srini Rajendran, Margaret McEwan,
	ARRIVALS: Monday **12th November** RAB; DARS; CRI; INERA; ZARI; TARI-ET; SARI-ET	Bernice Wairimu and Chris Kioko
MAIN MEETING: Tuesday 13th November 2018. Moderator: Jude Njoku & Benard Yada Rapporteur: Faith Njunge		
7.45 – 8.00	**Registration**	Bernice Wairimu
8.00 – 8.15	**Introductions and objectives of meeting**	Margaret McEwan (CIP-SSA)
8.15 – 8.30	**Opening remarks and update on SPHI**	Regional Director and Jan Low (SPHI Co-Leader and Principal Scientist)
Session 1: OUR JOURNEY – SUSTAINABLE EGS PRODUCTION		
8.30 – 10.30	**Plenary session: Country/institution presentations (PI):** SARI, NaCRRI, BioCrops, SRI, DARS, CRI,	Presentation of tables: 1a,1b,1c, and 2 with analysis & interpretation Presentation of outcome story: 15 minutes presentation 5 minutes questions per institution
10.30 – 11.00 Group photo and tea/coffee break		
11.00 – 13.00	**Country/institution presentations (PI):** TARI, KEPHIS, RAB, IIAM, NRCRI, ZARI,	**Continued**
13.00 – 14.00 Lunch		
Session 1: OUR JOURNEY – SUSTAINABLE EGS PRODUCTION		
14.00 – 14.20	**Country/institution presentations (PI):** INERA	Continued
14.20 – 14.45	**Discussion and r xeview of outcome stories**	Rosemary Kihiu
Session 2: Peer review of marketing strategy competition entries. Moderator: Srini Rajendran Rapporteur: Christine Okoye		
14.45– 16.30	**Group work:** peer review of marketing strategies	4 groups of 3-4 NARIs review each other's competition entry
16.10 – 16.30 Tea/Coffee break		
16.30 – 17.15	**Group feedback:**	10 minutes per group
End of day		
Wednesday 14th November 2018 **Session 3: EGS Business Continuity. Moderator: Rosemary Kihiu Rapporteur: Obed Mwenye**		
8.00 – 8.15	**Recap and housekeeping announcements**	Participant and Bernice Wairimu

TIME	SESSION	Responsible
8.15 – 10.15	**Country/institution presentations of business plan highlights (Agricultural Economist):** TARI, RAB, IIAM, NRCRI, ZARI, INERA	a. Fact Sheet **b.** Progress with implementation of the strategies to strengthen implementation of business plan **c.** Next steps for continued implementation of EGS business; including "key message" from your head of institution
10.15 – 10.30 ***Tea/coffee break***		
10.30 - 13.00	**Country/Institution presentations business plan highlights (Agricultural Economist):** SARI, NaCRRI, BioCrops, SRI, DARS, CRI, KEPHIS.	Continued
13.00 – 14.00 Lunch Break		
Session 4: Seed Regulatory Frameworks. Moderator: Margaret McEwan Rapporteur: Simon Zziwa		
14.00 – 16.00	**Group work to review seed standards and implementation of inspections**	4 country groups
16.00 – 16.15: Tea/coffee break		
16.15 – 16.45	**Financial reports submission**	Emily Ndoho
16.45 – 17.30	**Group report back on seed standards**	Plenary
17.30-17.45	**Evaluation and wrap up**	Srini Rajendran and Margaret McEwan
18.30 – 21.00	**Evening dinner**	Venue to be confirmed
THURSDAY 15th November 2016 **Individual review of and business plan and final narrative technical report**		
	DEPARTURES: BioCrops; NaCCRI; TARI-Tz; IIAM; NRCRI	Bernice Wairimu
8.30 -12.30	Review of business plans and final narrative technical report	RAB; DARS; CRI; INERA; ZARI; TARI-ET; SARI-ET Rosemary Kihiu, Srini Rajendran, Margaret McEwan
Lunch		
14.30 – 16.30	Review of business plans and final narrative technical report	RAB; DARS; CRI; INERA; ZARI; TARI-ET; SARI-ET Rosemary Kihiu, Srini Rajendran, Margaret McEwan
FRIDAY 16TH NOVEMBER 2016		
	DEPARTURES: RAB; DARS; CRI; INERA; ZARI; TARI-ET; SARI-ET	Bernice Wairimu

Participants List

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The **Sweetpotato for Profit and Health Initiative (SPHI)** is a 10-year, multi-donor initiative that seeks to reduce child malnutrition and improve smallholder incomes through the effective production and expanded use of sweetpotato. It aims to build consumer awareness of sweetpotato's nutritional benefits, diversify its use, and increase market opportunities, especially in expanding urban markets of Sub-Saharan Africa. The SPHI is expected to improve the lives of 10 million households by 2020 in 17 target countries.

SASHA
Sweetpotato Action for Security and Health in Africa

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