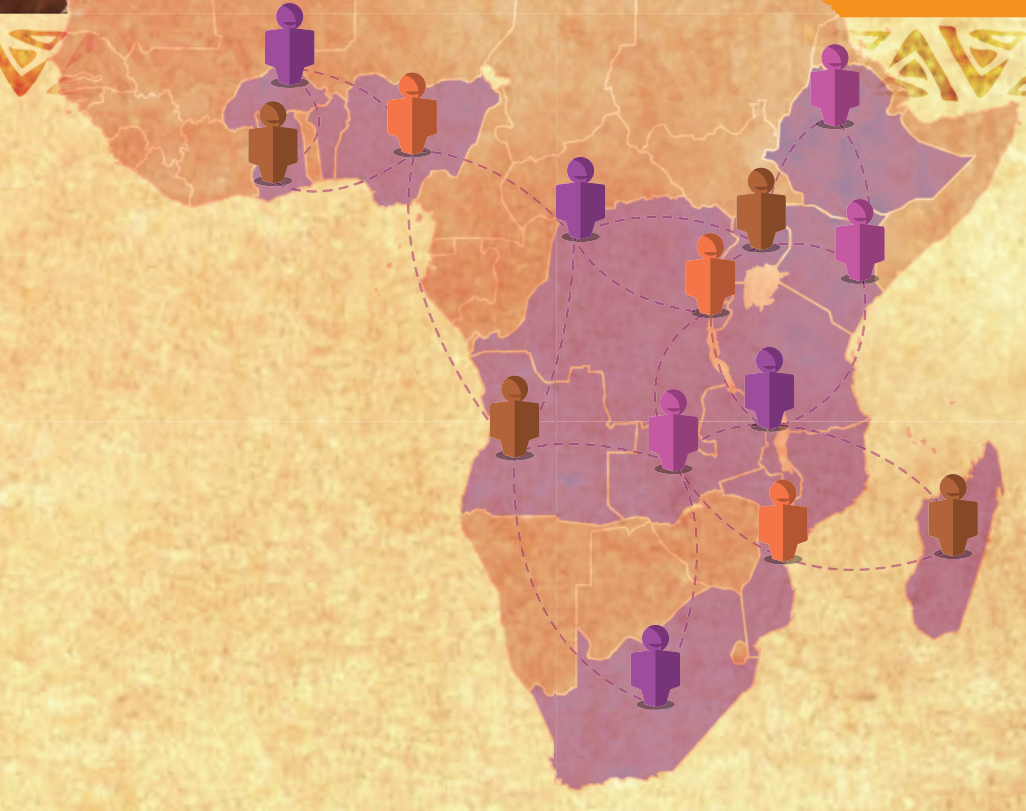
Monitoring, Learning, and Evaluation Community of Practice



SPHI
Sweetpotato for Profit and Health Initiative

Proceedings of the Third Annual Meeting

Theme: Harmonization of SPHI Indicator Data Collection

Hotel Maputo - Mozambique

30 January – 2 February 2017

Compiled by Christine Bukania; edited by Julius Okello

Monitoring, Learning and Evaluation Community of Practice

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Cover photo: *Members of the Monitoring, Learning and Evaluation CoP practice how to use Module 10 of the MLE manual to collect price information at the Central retail market in Maputo (credit: C. Bukania – CIP-SSA)*

Cover design by CIP Communications and Public Awareness Department (CPAD)

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ACRONYMS AND ABBREVIATIONS

ADEM	Agência de Desenvolvimento Económico da Província de Manica
AGRA	Alliance for a Green Revolution in Africa
BMGF	Bill & Melinda Gates Foundation
CIP	International Potato Center
CoP	Community of Practice
DDS	Dietary Diversity Score
DVM	Decentralized Vine Multiplier
DQA	Data Quality Assessment
FAO	Food and Agriculture Organization
FARA	Forum for Agricultural Research in Africa
FCI	Farm Concern International
FtF	Feed the Future
HKI	Helen Keller International
IIAM	Instituto de Investigação Agrária de Moçambique
IYCF	Infant and Young Child Feeding
M&E	Monitoring and Evaluation
MLE	Monitoring, Learning and Evaluation
NARI	National Agricultural Research Institute
NCSU	North Carolina State University
NRI	Natural Resources Institute
ODK	Open Data Kit
OFSP	Orange-fleshed sweetpotato
PFSP	Purple-fleshed sweetpotato
QDPM	Quality Declared Planting Material
QDS	Quality Declared Seed
SPHI	Sweetpotato for Profit and Health Initiative
SSA	Sub-Saharan Africa
SUSTAIN	Scaling Up Sustainable Technologies in Agriculture and Nutrition
UCAM	União de Cooperativas Agrícolas de Marracuene
USAID	United States Agency for International Development
USG	United States Government
VPC	Vegetatively Propagated Crops
WFSP	White-fleshed sweetpotato

INTRODUCTION

Over 30 participants attended the 2017 annual meeting of the Monitoring, Learning and Evaluation Community of Practice (MLE CoP). The meeting was held in Maputo, Mozambique from 30th January to 2nd February 2017. It was officially opened by the Country Manager of the International Potato Center (CIP) in Mozambique, Maria Andrade. The highlight of the 2017 meeting was a practical, hands-on training and orientation to the use of the M&E manual titled **Tools and Techniques for Monitoring Key Indicators of Sweetpotato Interventions in Sub-Saharan Africa: A Practitioner's Manual.**

The manual is a product of the efforts of the CIP M&E Team and took more than 1.5 years to develop. It went through several rounds of review and field testing and benefited from input and feedback from a wide range of experts both within CIP and from partner organizations. The aim was to develop a practical toolkit for collecting monitoring data in a systematic and consistent way. Among other things, the manual can be used on indicators to capture progress in dissemination, yield improvement, food security and nutrition indicators. These are some of the indicators that are tracked under the Sweetpotato for Profit and health Initiative (SPHI). Overall, the manual consists of nine modules, each of which outlines the module on different aspects of essential monitoring data.

The MLE CoP meeting therefore provided most of the participants with the opportunity to learn how to apply each of the modules and ways of building additional project-specific monitoring into the manual. It also collected feedback from the participants for further improvement of the manual. In addition to learning how to apply the M&E manual, participants were trained on the essential steps in developing M&E plans and on some of the key indicators in the Feed the Future (FtF) projects. Participants learned from practical experiences of implementing complex M&E plans shared by Hellen Keller International's M&E coordinator and guidelines on the measurement and reporting of the FtF indicators from USAID-Mozambique's M&E Specialist. As is usually the case, the participants also attended a one-day field visit that was designed to help them learn how to collect indicator data during a mass sweetpotato vine distribution event. The field session was organized to mimic an actual mass distribution event and was held in a rural community targeted by one of the projects being implemented by CIP-Mozambique.

This report provides a summary of the presentations made at the 2017 MLE CoP meeting and discussions that ensured after each presentation. The actual presentations can be downloaded from http://www.sweetpotatoknowledge.org/topics/monitoring-learning-and-evaluation-cop/

1 WELCOME ADDRESS

Julius Okello / Maria Andrade

Julius Okello's opening remarks recognized the 2016 World Food Prize Laureates i.e. Dr. Jan Low and Dr. Maria Andrade, both of the International Potato Center (CIP), and who were present at the meeting, as well as Dr. Robert Mwanga (CIP) and Dr. Howarth Bouis (HarvestPlus). The four were awarded the Prize for their achievements in using biofortification to improve the livelihoods of millions of people around the world. Okello thanked the team in Mozambique, which is led by Maria Andrade, for organizing and hosting this year's MLE CoP meeting. Julius welcomed the increased participation of SPHI partner organization's in the 2017 meeting, and noted that Farm Concern International (FCI), Helen Keller International (HKI), and HarvestPlus were represented.

In her welcome address, Maria Andrade talked about the focus of sweetpotato work in Mozambique, and appreciated the decision to bring the meeting to Mozambique. She congratulated the efforts being made to establish common terminologies and methods of monitoring, learning and evaluation within the SPHI.

2 MONITORING, LEARNING AND EVALUATION COMMUNITY OF PRACTICE UPDATE

Julius Okello / Ibrahim Koara

This session highlighted the historical development of the MLE CoP over the last three years. It noted that when the MLE CoP started in 2015, it had 16 members only. That number had grown to more than 45 members at the time of the 2017 annual meeting. The number of disciplines represented has expanded to include agricultural economics, international development, agribusiness/marketing, animal breeding, computer science, biometrics and project planning, value chain, gender, agronomy and public health. The growing diversity is also visible in the increasing number of organizations represented in the MLE CoP, such as, CIP, International Institute of Tropical Agriculture, Hellen Keller International (HKI), Farm Concern International (FCI), Forum for Agricultural Research in Africa (FARA), HarvestPlus, iDE, Council for Scientific and Industrial Research and ACDI VOCA.

The session highlighted the online discussions topics in 2016. These were:

1. Production metrics in sweetpotato projects – How do we measure output, area, yield and gross margin?
2. 2016: Sweetpotato variety identification
3. M&E data quality management, data accuracy, sysmis and extreme values
4. Capturing vine/seed beneficiaries in mass dissemination event

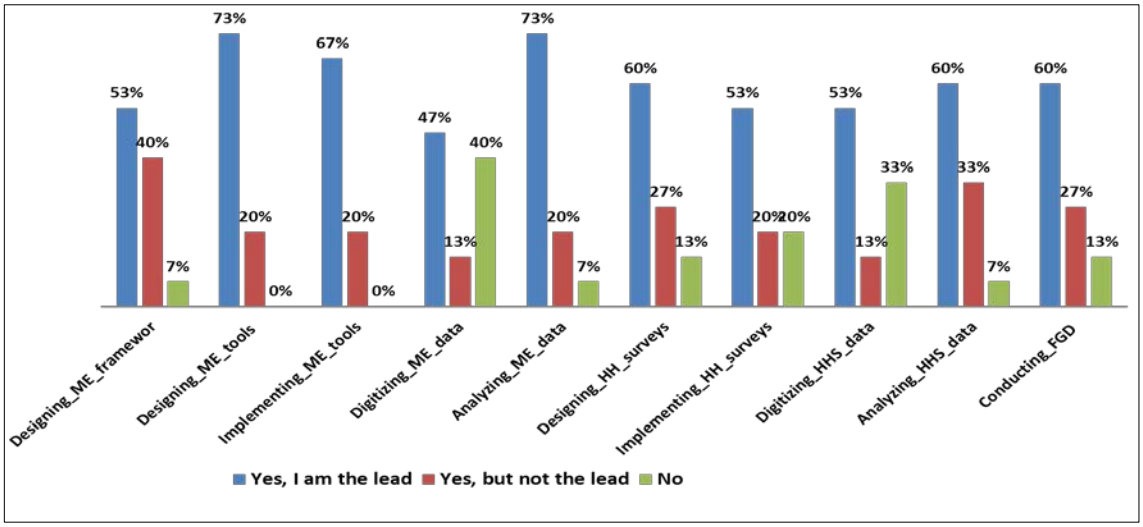
These discussions have resulted in some consensuses namely;

#1: Yield and gross margin measurement: • Estimates based on recall riddled with problems • Best to use crop cut	#2: Variety identification • Use local experts and knowledge >> finger printing coming but not here yet • Label, label, label >>> when it has a fancy name already, they need not give it another
#3: Data quality management • Spend enough time in designing questions and training enumerators & hire keen supervisors • Use scientific methods if replacing missing data	#4: Planning mass distribution event • Do good forward planning and allocate sufficient time • Work with community leaders to list beneficiaries ahead of time

The session further highlighted the success in Decentralized Vine Multipliers (DVM) mapping in 2016 and noted that mapping of DVMs was conducted successfully in nine countries: Ghana, Zambia, Malawi, Kenya, Rwanda, Uganda, Ethiopia and Mozambique. It also pointed out the successful completion of the M&E manual titled *'Tools and Techniques for Monitoring Key Indicators of Sweetpotato Interventions in sub-Saharan Africa: A Practitioner's Manual'* by a team from CIP and noted that that learning the content and application of the manual was going to form the basis of the program for the four days.

Ibrahim and Julius pointed out that since some MLE CoP members are not specifically trained M&E professionals, the MLE CoP has proven useful in understanding the technical and practical aspects of MLE. They further noted that many CoP members were involved in routine project monitoring as shown in the figure below and thus found the lessons from CoP valuable. They reiterated the MLE CoP's vision, namely that it exists to help members in "Getting Better Together" at project monitoring and evaluation.

Figure 1: How MLE CoP members are using the information they get at meetings

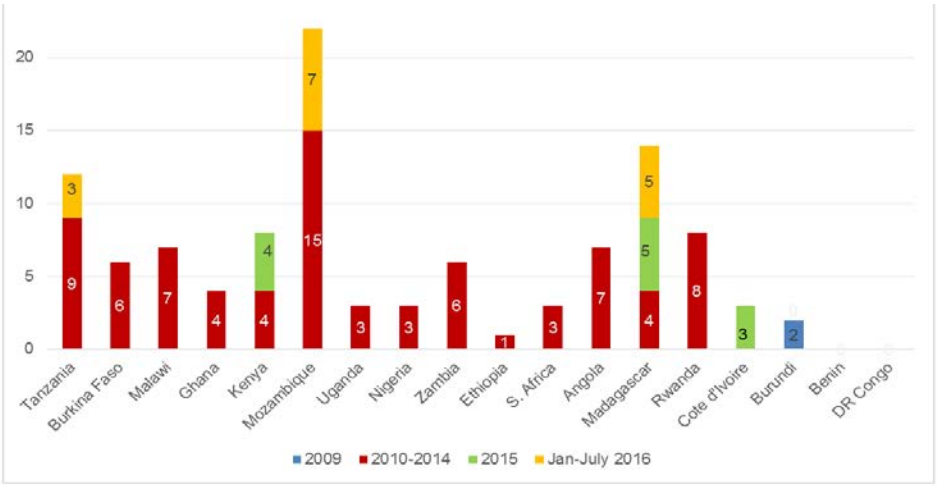


3 PROGRESS TOWARDS THE SPHI GOAL OF 10 MILLION AND PURPOSE AND HOW TO USE THE MONITORING MANUAL

Jan Low

The Sweetpotato for Profit and Health Initiative (SPHI) has the goal to reach 10 million households in 17 sub-Saharan African (SSA) countries with improved sweetpotato varieties by 2020. This is through building consumer awareness of sweetpotato's nutritional benefits; diversifying its use and expanding market opportunities; and improving diet quality by 20% and household incomes by 15% in beneficiary households. Since 2009, the Alliance for a Green Revolution in Africa (AGRA) has given funds to nine national programs, increasing capacity from two programs breeding locally to 12. As a result, 109 varieties have been released, 70 of them orange-fleshed, in 15 of the 17 SPHI target countries and one non-target countries (Côte d'Ivoire). Forty of the released varieties were bred in Africa.

Figure 2: Sweetpotato varieties released by country



The SPHI reached 2,895,381 households by September 2016, which is 29% of its goal. Uganda has made the greatest progress, having reached 34% of its goal. Ethiopia set a lower goal and has already surpassed it.

The area under sweetpotato has steadily risen, and it is growing faster than other staples. However, in East and Central Africa, the pattern was affected in 2016 by prolonged drought and failure of rains. Among the target countries, Nigeria has the highest change in area under sweetpotato, followed by Tanzania and Uganda. These countries are currently influencing the SPHI statistics. In Nigeria, sweetpotato is the only root and tuber crop that grows in every state. In Malawi, the failure of staples like maize has led to increased support for sweetpotato and cassava, which are more drought tolerant.

Good collection of lists of beneficiaries and their locations will facilitate follow up of permanent adoption, i.e. by tracing those households a few years after the end of the project to see which varieties have been adopted and grown. For example, in Zambia, people like sweetpotato leaves, but if the shape and taste are not good, the variety is unlikely to stay in the system. This data is also a requirement for some donors, as evidence that vines were delivered to households. A good database helps to address all these informational requirements and strengthens credibility.

Prioritized mapping of vine multipliers using improved Open Data Kit (ODK) smart phone tool: The knowledge portal was improved, and it is now easier to look up vines. Maps also tell people about the concentration of DVMs in each country. In 2016, 345 DVMs were registered in seven countries.

More and more, the SPHI will try to get policy makers to include sweetpotato, especially OFSP in their programs. Niassa province in Mozambique has included sweetpotato as a major component of the food security and nutrition strategy. Even though CIP only supported eight districts, all other districts have been instructed to invest in OFSP.

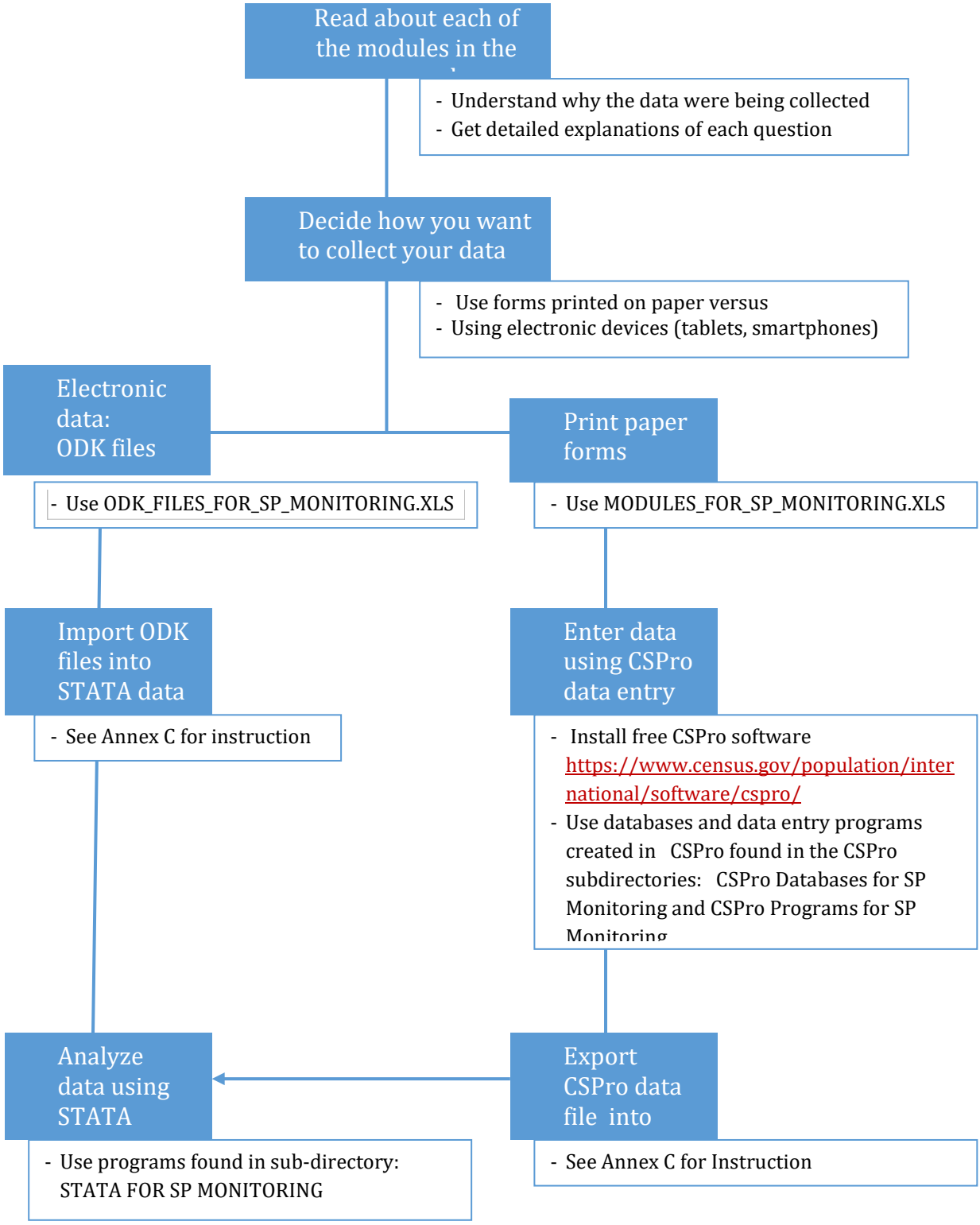
The M&E manual: The development of the manual has taken 1.5 years. The vision was to develop a practical toolkit that focuses on the essential indicators for capturing progress in dissemination, yield improvement and key food security and nutrition indicators needed by the SPHI. The steps to operationalize the manual include training users and backstopping them as they start implementing the toolkit.

Why develop and use a consistent set of key indicators across the countries: Donors and most organizations have moved to results based management systems and an evidence on results based delivery. There is need to capture progress at-scale, beyond the borders of a single country. Furthermore, sweetpotato production has always been under-captured in national data sets. Hence its importance in the food system is underappreciated. There is need to increase the momentum in order to reach the 2020 SPHI goal. The 2016 World Food Prize and Al Sumait Prize have provided the momentum on which the SPHI can build.

While the manual has been developed in a way that allows individual projects to add the indicators that they need specifically for their work, the standardized data collection of the core nine modules is key to be able to compare data across countries and sites.

To conclude the presentation, Low briefly presented the flow chart that shows how to use the M&E manual and thanked the team: Temesgen Bocher, Luka Wanjohi, Julius Okello, Srini Rajendran, Kirimi Sindi (who hosted two field testings in Rwanda) for preparing the manual. She urged the participants to provide feedback on the manual, which would later be used for revisions.

Figure 3: How to use the M&E manual effectively



4 SPHI INDICATORS AND DATA COLLECTION

Julius Okello

The SPHI has two broad categories of goals: Agriculture - Improve crop income by 15%; Nutrition – Improve diet quality by 20%.

The indicators are as follows:

Vine dissemination • **# of households receiving OFSP vines disaggregated by:** ✓ Presence of U5, pregnant or lactating mothers ✓ Gender of household head Improvement in diet quality	**Mean household production– SP, OFSP** ✓ Volume (Kg/HH) ✓ Value of production (US $)
Mean household sales: SP, OFSP ✓ Kg/household ✓ Value ($)/household • **% of households selling SP, OFSP**	**Improvement in diet quality** • **Dietary diversity** ✓ *Household >> HDD* ✓ *Young child (Individual) >> CDD* ✓ *Woman >> MDD-W* • **Frequency of vitamin A consumption**

The process of developing the first update report for the SPHI was difficult. There were problems in distinguishing between direct and indirect beneficiaries and obtaining estimates of production and sales (supposedly because recall data was being used and it was not reliable, hence not reported consistently). Nutrition outcomes could not be compared because dietary diversity was being computed using different methods, and presented in different formats (tables, charts, pie charts) by different projects. These are some of the reasons the M&E manual was developed; namely to systematically capture harmonized indicators of sweetpotato interventions in SSA.

5 MODULE 1: SURVEY DESCRIPTION AND METADATA

Luka Wanjohi

CGIAR Open Access and Data Management Policy states: “CGIAR regards the results of its research and development activities as international public goods and is committed to their widespread dissemination and use to achieve the maximum impact to the advantage the poor, especially smallholder farmers in developing countries. CGIAR considers open access (defined below) to be an important practical application of this commitment as it enhances the visibility, accessibility and impact of its research and development activities. Open Access improves the speed, efficiency and efficacy of research; it enables interdisciplinary research; assists novel computation of the research literature.”

The policy requires that data collected by CIP and its partners be open access compliant. For data to be compliant, it should be findable, accessible, interoperable and usable. CIP is expected to be fully complaint to open access by 2018. The table below provides timelines for compliance with CIP’s Open Access policy.

Table 1 Deposit timelines

Deposit Timelines

CIP's towards full compliance of Open Access (OA) in 2018

Type of Information Product	Transition Deposit Schedule (until Oct 1, 2018)	Policy Deposit Schedule (Oct 2, 2018 onwards)
Peer-reviewed versions of articles	As per the Policy Deposit Schedule unless OA is prohibited or subject to a longer embargo period by publisher	Ideally, at time of publication Latest: 6 months from publication
CIP-published journals, books, reports, etc.	Immediately	Immediately
Reports and other papers	As soon as possible Latest: within 6 months of completion	As soon as possible Latest: within 3 months of completion
Books/book chapters	As per Policy Deposit Schedule	As soon as possible Latest: within 6 months of completion
Data and data sets	As per Policy Deposit Schedule	As soon as possible Latest: within 12 months of completion of data collection or appropriate project milestone, or within 6 months of the publication of the information products underpinned by that data

For all Bill & Melinda Gates Foundation (BMGF) agreements made after January 1, 2015, peer-reviewed articles and data underlying published research results must be open access. BMGF policy has a transition period, but it will expire at the end of 2016. After that point, all publications and data must be immediately accessible with no embargo periods.

Since the regional meeting held in Cali in August 2015, CIP has achieved several phases in implementing Open Access. CIP is quite new in implementing Open Access, especially for Open Data.

CIP launched Open Access formally on January 2016. The Open Access Implementation Plan was submitted to the CGIAR consortium on September 2015. CIP created its own Publications Policy, Open Data and Research Data Management Policy and Guidelines supporting processes and workflows linking to its Project Life Cycle framework. CIP decided to have a local installation of Dataverse. The data repository is able to generate DOIs directly through the application. All resources for Open Access are available at Open Access and Open Data Toolkit (http://cipotato.org/open-access) along with training materials to support several aspects of implementing Open Access at CIP.

6 MODULE 2: HOUSEHOLD BACKGROUND INFORMATION

Julius Okello

The purpose of Module 2 is to collect data on the characteristics of the household and key persons in the household meet the targeting criteria of agriculture-nutrition projects as well as their geo-references/locations. There are three persons of interest: household head, woman of reproductive age and child under 5 years.

More specifically, the objectives of Module 2 are:

- To obtain permission to collect data about the household
- To collect descriptive data about key members of the household and their socio-economic characteristics (e.g., age, sex)
- To determine where the household is located (administrative units and geo-referenced compound), so that a return visit would be feasible
- To understand some key characteristics of the household, such as amount of land under cultivation, livestock ownership, etc.

The tools to be used for this module are provided in the manual. They include a one-page Excel questionnaire; a CSPro data entry program for digitizing the information collected using the paper questionnaire; and an Open Data Kit (ODK) program that can be used on android-based smart phones or tablets for monitoring data collection.

Julius discussed some of the important issues that need to be given attention when collecting data using the tools provided under this module, and also provided definitions of some of the variables to be collected and how they out to be measured.

Temesgen Bocher who led the practical sessions of this module noted that ODK does not export directly to STATA. Consequently, a tool has been developed to export to STATA by removing the prefix. The steps followed are outlined in the accompanying do-files and were presented during this session. The commonly used commands in STATA were also presented. The participants were advised to avoid changing value labels because doing so requires that the STATA program be changed also.

During the discussions, it was further noted that CSPro and ODK have different strengths. CSPro requires more effort with regard to programming, but once it is done, it is efficient and guarantees better data quality. ODK on the other hand, has been preferred by many because of ease of use; yet it needs two levels of programming. Because there is no general consensus about which of these two are user-friendly, the manual covers both options.

After going through the description of all the fields with the presenter, participants used ODK to fill out a questionnaire, including GPS data, and saved the data.

7 MODULE 3: TRENDS IN USING SWEETPOTATO

Kirimi Sindi

It is often difficult to get accurate data about trends, and this module is aimed at helping to get this data. It identifies trends in area under sweetpotato, and proportion of households growing it, percentage changes in area allocated to different varieties of sweetpotato and sales over three years. It is easy to analyze and get a general trend, but one should always remember that it is an estimation based on farmers' perspectives. Three years is recommended because it relies on recall data. It is also recommended that the production module be used to collect accurate data. This module can be incorporated in baseline and endline surveys or at any point in project implementation. It is recommended to interview at least 120 households to take advantage of large sample properties.

7.1 SUMMARY OF DISCUSSION

The following points should be noted when using this module:

- It is extremely important to collect data during the same time period/season; data should not be collected for too long, because the seasons and perceptions of people will have changed.
- To get adoption rates, data from the sample of those who received the intervention the previous year can be used for extrapolation. Other methods such as social network analysis can also be used to track the changes in the use of a variety.
- It is important to collect data on both male and female beneficiaries; this is sometimes a requirement by the donor, but it is also useful to understand the gender dynamics within the project area.
- When collecting data on multipliers, it is a requirement to specify if they are trained.
- In cases where there are two responses e.g. Male/Female; Yes/No; it is good practice to use 0 and 1 because these are well understood by the computer system.
- When collecting data about varieties, it is important to note that flesh color is not a variety; however, after the respondent has stated all the varieties acquired, the color chart should be used to get more information about the flesh color.
- Terminologies like Triple S should be well understood and explained to the respondents. Where possible, photos that depict the technologies should be used.

After the presentation, participants went through the questions using the paper version and then data analysis using STATA.

7.2 SUGGESTIONS FOR IMPROVEMENT OF MODULE 3

The following suggestions were made by participants / or to address challenges and problems raised:

- M03_03: There was concern about how this question was framed; suggestions were to revise them to either include Farmer Groups as an option; or acquisition from neighbors.
- M03_04: A suggestion was made to also code the reason: "To expand acreage."
- Something should be written in the notes to direct the enumerator to introduce the next section e.g. introduce the module by saying: Now we are going to talk about selling.
- To find out whether more men are involved in sweetpotato growing, or the labor contribution of different genders in sweetpotato production, one can ask questions about what happened before and now.
- To get an idea of the trade route, respondents should be asked where sweetpotato was sold to; and whether sweetpotato was sold in dry or raw form. This information is included in Module 4.
- A master list of variety codes should be kept on the knowledge portal. A sweetpotato variety whose code does not exist should be coded as 9998, and later on help should be provided to code it.

8 MODULE 4: PRODUCTION AND SALES VOLUMES

Kirimi Sindi

The sweetpotato varieties being promoted are superior to the existing ones in the following aspects, namely:

- They are bred to be pest and disease tolerant
- The orange-fleshed types have superior levels of beta-carotene (pro-vitamin A) –deeper orange indicates higher beta-carotene
- They mature much faster, i.e., 3-5 months instead of 6-7 months hence are higher yielding and early maturing
- Households get food faster during the hunger season

It is usually not easy to collect production data, because most households do piecemeal harvest unless they are commercially oriented. It is therefore difficult to make estimates based on one question on sweetpotato yield. While crop cut is a more accurate method for yield estimation, farmer estimation of yield should also be done. Sales estimates, gender dynamics in production and sales, increase in yield and sales are also important indicators.Module 4 specifically aims to assess: whether households receive and grow improved varieties of sweetpotato; adoption of biofortified orange-fleshed varieties; if the household gets higher harvests; and if the household sells the new varieties. The manual provides three different methods that can be used to collect the information at baseline, midterm and endline. It is critical to utilize pre-testing to get measurement units and conversion factors and to get clearly the reference period (year, season); starting month and ending month; and number of fields (plots) and their location. It is also important to clearly identify the period of consideration; whether data is for total area or per plot (field); variety in terms of flesh colors; units of measure at harvest; what is a major and a minor harvest; and frequency of harvest and unit of measure (day, week, month).

8.1 PRACTICAL EXERCISE AND FEEDBACK FROM PARTICIPANTS

The production module was tested and discussed by participants. They shared their experiences and provided the following feedback:

- When interviewees have many minor harvests, they could be averaged; however the idea is to capture seasonality – when the roots are leaving the ground; and how much is sold.
- The maize equivalent is a gunny bag which is 90kg when full of maize. Every crop has its own density, so the sweetpotato weight would be different. OFSP usually weighs less than white-fleshed sweetpotato (WFSP) because of the difference in dry matter content. There can be huge regional variation in weights, as demonstrated by the work done by the World Bank. Whether the container is heaped or not makes a big difference. In Kenya, a study by Natural Resources Institute (NRI) found three different types/sizes of bags. Because the standards for sweetpotato marketing vary greatly, conversion factors should be used to figure out their density.
- In HKI, there was a problem of measuring yield, and in the end a conversion tool was developed. The tool was first developed in Mozambique during a national survey, which included cassava, and was intended to take into consideration the piecemeal nature of harvesting.
- In a longitudinal study in Malawi, households were given a standard sized basket, because the researchers were collecting data from the same households. However, in an ongoing market analysis study, data collectors go to the same market every week. Since they noticed that the containers are always changing, they have to weigh them each time.
- Generally, when wholesalers buy at the farm, they ensure that the kilos remain constant, but at the retail market, they try to make as much profit as possible. The supervisor should therefore be very keen to ensure the conversion data is collected.
- With production, farmers have an idea of how much quantity they are going to get, and the prices they expect. This information should be sought. To triangulate, one can ask a few questions about what they expected and what they got.
- Collecting data on farmers who produce for both commercial and home consumption and those who produce on many different plots throughout the year could get confusing. It was decided that collecting plot specific data would be most appropriate, but there has to be a compromise when one collects data on very many different plots and uses.
- Sweetpotato tends to mature at different times for different varieties, therefore it is important to collect data on the months of major and minor harvests.

9 FEEDBACK FROM THE BREEDERS: A CONTRIBUTION TO THE MLE TOOL

Godwill Makunde, Maria Andrade, Jose Ricardo, Abilio Alvaro, and Joana Menomussanga

There are five projects run by CIP and one by the national program. The projects are distributed across the whole of Mozambique. The table below shows the timelines and progress towards targets for each project.

Table 2: Project timelines and progress towards achievement of targets

PROJECT	START	END	TARGET	ACHIEVED
OFDA (2011-2013)	June 2011	September 2013	120,000	150,254
OFDA (2016-2017)	August 2016	July 2017	25,000	3,800
Irish Aid	November 2012	November 2016	20,000	28,044
VISTA	October 2014	July 2021	102,500	21,542
SUSTAIN	April 2014	June 2018	35,000	27,000

The Sweetpotato Action for Security and Health in Africa (SASHA) project has the following milestones:

- Studies demonstrating that significant genetic gain (2% per year in yield) in two years in early generations and four years for selected varieties can be achieved,
- At least 150 thousand seeds with drought tolerant genes disseminated to at least ten National Agricultural Research Institutes (NARIs),
- Hybrid progeny exhibiting yield jump of 10-20% in hybrids from populations with drought tolerant and enhanced efficiency for drought tolerance breeding,
- Clones with 200% RDA of pro-vitamin A, 25% RDA of iron and 35% RDA of zinc under high intakes for young children.

With regard to population development and breeding protocols, on-station and on-farm trials have been established. There are two different OFSP populations (one at Umbeluzi and another at Gurue) and one purple-fleshed sweetpotato (PFSP) population at Gurue. Fifteen OFSP varieties were released in 2011. In 2016, seven varieties were released - three PFSP, two dual purpose OFSP varieties (food and feed) and two OFSP for food. There has been an increase by 16% for beta-carotene, 6% iron and 18% zinc content between 2011 and 2016 and means for dry matter shifted from 23.4% to 27.8-31% between 2000, 2011 and 2016**.** True botanical seed were shared with 19 NARS in Southern, East and Central and West Africa and South East Asia.

The following indicators are being used:

- Agro-ecological zone - Number of varieties - Marketability (root shape and sizes) - Primary- and secondary flesh color - Number of generations/cuttings - Source of planting material - Taste - Number of uses of the variety (juice, bread, root and leaf consumption etc.) - Major use	Drought tolerance: Frequent exposure to drought causes decline in yield, increase in weevil infestation (negative effects on quality) and shortages of planting material - Capture rainfall data during growing season - Weevil resistance - Survival of planting material – vine survival (related to drought) - Underground storability - Sprouting ability - Vine vigor - Number of times piecemeal harvesting is done per variety Dates of planting and date of first harvest

10 FEEDBACK ON DAY 1 FROM PARTICIPANTS

Participants raised the following feedback and recommendations on the CSPro training, and the questionnaires that were introduced to them on the first day of the meeting.

- I enjoyed CSPro, but the speed was too fast, try to go slower so that everyone can catch up.
- It was my first time going through CSPro, and I found it interesting.
- I appreciate the rationale behind the effort to harmonize indicators so that we can aggregate indicators across countries. It is a step in the right direction.
- The form for collecting data on yield is very long and can get boring, especially when collecting data on different seasons and fields.
- When entering data, there should be an option for autofill. For example, if a respondent does not have a major or minor harvest, '0' should be indicated automatically.
- When being interviewed by my colleagues, I got a sense of how daunting this exercise would be for farmers. We should try to balance between quantitative data and Likert scale data, otherwise if the farmer is tired, they may give fictitious data just to finish. Such fall back questions might help to ensure the quality of data.
- Entering data in the CSPro form was tedious. I thought that we would need to tick only the applicable box.
- At the end, I could not tell if the form was saved or not; there should be a message informing the user that it has been saved.
- Some of the questions on technologies are confusing, e.g.: Have you ever heard of Triple S? Distinction between upland and lowland areas?

The facilitators agreed that the feedback was a true reflection of the issues. Module 4 is the most challenging, and Module 3 was included to balance the data. They emphasized that while Module 4 uses recall, Module 3 provides trends. Module 9 uses crop cut, which is more accurate. Therefore, there are three tools to select from when interested in collecting production/yield

data. They also emphasized the need to focus on the spirit of the questionnaire. During training of enumerators, explanations should be clear enough to capture the actual purpose of the questions. When asking about technologies, visual aids and photographs should be used as much possible.

In the first session, participants ensured that they had finished entering the data using CSPro, after which they checked to see how it looks like in Excel. They learned how to save data, and how to label and define variables using STATA.

11 MODULE 5: HOUSEHOLD FOOD SECURITY

Jan Low

Food security is defined as a state in which "all people at all-time have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life." There are many indicators of household food security.

The module uses Household Food Insecurity Access Scale**,** which focuses on the access component of food security. Households experience food insecurity in varied forms:

- **T**he feeling of uncertainty or anxiety over food
- The perception that the food is of insufficient quantity and quality
- Reported reduction of food intake
- Reported consequence of reduced food intake
- Reported socially undesirable means of coping with unavailability of food (e.g. eating foods that are really unwanted)

The form for Module 5 has nine questions, covering a recall period of 30 days. It is a period that people can remember, and the respondent is first asked about whether the condition has happened in the past four weeks. Next, the respondent is asked whether the condition happened: rarely (once or twice), sometimes (three to ten times) or often (more than ten times).

The question asks if there was a limited variety of foods due to lack of means to buy them. This is quite broad, but the diet diversity indicators might be able to pick up the issues of quality of diet and nutrition.

There are numerous references that explain reasons for the selection of the indicators and recall period. The selection is based on testing done when developing the tools as well as comparison with other methods.

Ideally, the food security module should be used during harvest and hunger seasons in order to see change. However, if one can only monitor once, it should be during the lean season. Module 5 helps to capture the seasonality of hunger.

11.1 SUMMARY OF DISCUSSION

- The questionnaire does not capture information about foods that people do not consider as 'meals' e.g. cassava, sweetpotato, neither does it capture the quantities. This makes it difficult to measure the calories per household. It is not only the quantity that matters, but also the quality of the food, and the portion of the meal e.g. eating two instead of three meals.
- The raised points are critical and should be discussed in more detail. Four or five tools were tried and this was found relatively good when compared with the others. The training of enumerators is very important, and the local context about what food is should be well understood. Enumerators should explain what exactly is meant by food before administering questions. There should also be possibility to triangulate by asking questions that help.
- All countries should follow the seasons e.g. harvest/lean seasons to make the data comparable across countries.
- In Mozambique, many enumerators request that the questions should be altered, with number 1 being put last, as they feel it is a leading question. However, the tool is a standard one, validated in literature and adapted to sweetpotato modules. It therefore should be administered as is.

12 MODULE 6: DIET DIVERSITY

Jan Low

Quantitative data on nutrient intakes are expensive and difficult to gather. At the household level, diet diversity is a low-cost measure of access to food. At the individual level, it has been validated as a proxy for assessing the adequacy of micronutrient intakes of women and children.

This module discusses the meaning of the different measures. It has simple food group diversity indicators currently used or advocated for use at population level and that have been validated.

Household Dietary Diversity Score (DDS) is the number of unique food groups consumed by household members over a given period. It measures, in a snapshot form, the economic ability of a household to access a variety of foods. Thus, items that require resources to obtain such as condiments, sugar and sugary foods, and beverages, are included in the score.

The form has been developed as a hybrid that helps to collect data on multiple indicators. Examples of estimates of the OFSP consumed is collected and a color chart used to get the accurate information. Focus is on the women and children in assessing dietary diversity indicators.

One participant added that sweetpotato is singled out in a questionnaire. It is under staple and vegetable, and the argument for including it is that it is often missed. In the calculation, if standard diversity is measured, the contribution of biofortified crops is relevant.

13 MODULE 7: FREQUENCY OF CONSUMPTION OF VITAMIN A-RICH FOODS

Jan Low

Helen Keller International (HKI) invested in developing a semi-quantitative, food frequency method that looked at the frequency of intake of vitamin A-rich foods and validated these results against serum retinol values in Tanzania (Rosen et al., 1993). This method is used to assess whether a given population is at risk of vitamin A deficiency, and focuses on foods eaten during the past seven days. If repeated seasonally, it can help monitor which vitamin A-rich foods, such as OFSP, are coming into the diet by season and over time.

This module helps to collect information about the frequency and quality of the diet. It also helps to calculate a community level indicator, to estimate whether the community has a vitamin A deficiency problem, which is determined by two threshold values:

- ≤4 days per week for mean frequency of consumption of animal sources of vitamin A
- ≤6 days per week for mean frequency of consumption of animal and plant sources of vitamin A (weight by source).

Animal Score= Eggs + Fish with Liver intact + Liver + Butter + Cod Liver Oil + Fortified Weaning Foods + Fortified Margarine + Fortified Sugar + Fortified Infant Formula

Plant Score = (Dark Green Leafy Vegetables + Carrots + Ripe Mango + Pumpkin or Orange Squash + Ripe Papaya + Yellow Sweetpotato + Orange-fleshed Sweetpotato + Red Palm Oil + Passion Fruit)/6

Total Score = Animal Score + Plant Score.

10.5 is the maximum possible score.

The key is to get enumerators to talk about the number of days, and not the number of times starting from a defined day. e.g. “From Sunday, how many days did a child eat dark green leaves?” Sometimes milk is added into a dish, therefore, it should be about the ingredients more than the foods.

In some places in the questionnaire, foods can be changed to reflect those eaten in a specific area. However, some foods, like red palm oil should be retained because they are part of the core module. There are some joint categories e.g. dark green leaves of all kinds, and in other parts of the module have specific leaves. When collecting data, the number of times specific leaves were eaten should not exceed the number of times dark green leaves of all kinds were consumed. In case nothing was captured in the DDS, quantitative estimates can be got for the past seven days on sources of vitamin A-rich foods.

14 DATA ANALYSIS USING STATA APPLICATION TO MLE MANUAL

Temesgen Bocher

STATA is an easily adoptable program with standard variable names. It provides a robust and dynamic way of analyzing data, which can be transferred from ODK, CSPro, SPSS and Excel. The STATA program in the MLE manual has two parts: cleaning and generating new variables; and analysis.

Using data from Module 6, the CSPro application was run to concatenate data (join together). This entire process is outlined in Annex 3 of the manual.

Following the exercise, participants asked questions and provided the following feedback on the process and the use of CSPro and STATA.

- The questionnaire is very clear and distinguishes between 6-23 months and 6-59 months for children under the age of five. The module clearly mentions children under six months. The recommended DDS is used, but people can add other information that they require.
- For children under the age of two, it is important to have breastfeeding and non-breastfeeding because the DDS of the breastfeeding would be expected to be lower. This will require combining Module 6 and 7.

15 MODULE 8: DISSEMINATION

Abdul Naico / Valentine Uwase

A core element of all sweetpotato projects is the multiplication and dissemination of vines to households. Every project needs to monitor how many beneficiaries are reached and where those beneficiaries are located. Strategies for vine dissemination include:

- Mass vine dissemination – large number of recipients come to a central place to retrieve vines.
- Mass distribution – use controlled mass dissemination partners (e.g. alphabetization programs, health centers and specific groups of farmers.
- Vine dissemination using DVMS (use of vouchers).

The forms are designed with four types of situations in mind:

1. A set quantity of material of 1-2 varieties is provided to every household
2. More than two varieties are provided to a household, and the amounts and type of variety may differ by household
3. The distribution is done all at once (mass distribution) with or without the farmers redeeming vouchers
4. The distribution is done at the site of a vine multiplier when vine recipients arrive to collect vines on different dates

15.1 VINE DISSEMINATION IN MOZAMBIQUE

Typically, materials from two sweetpotato varieties are distributed. Therefore, the form was designed with fields for two varieties only. In Mozambique, there are 15 varieties, so the form was adjusted to four varieties. The template is available on Page 80 of the manual.

The data collectors are often extension agents. One of the challenges they face is that there are many varieties on the form. The codes being used are contained in the manual; however, some new varieties are yet to be allocated codes. Another challenge is in use of names; some respondents have no surname or middle name which can be confusing. Filling out the age category can be a challenge if the data collector chose not to go to the field and instead filled out information about the respondents that they know, or if respondents declined to state their age. Validation of data can generally be done by randomly calling the respondents' numbers.

For DVMs, the focus is on the voucher, especially when it is not an emergency situation. The voucher captures very good information and most of it is the same as what is on the dissemination form. A question about knowledge of vitamin A is included as a reference for nutrition knowledge. Data is also collected in cases where no voucher system is in place. For example, when beneficiaries buy directly from the DVMs, forms are filled. In cases where mass dissemination is done without the vouchers, partners are involved in the distribution. During field days, nutrition education is undertaken.

The forms and vouchers are sent to Maputo on a regular basis. The data is digitized using CSPro. In future, the data will be entered on the spot (i.e., in the field) to reduce the risk of losing filled forms. The first point of filling the data is on the field day. The agents take advantage of this time and give vouchers to those that are eligible. The voucher book remains with the extension agent who submits the vouchers for payment based on how many were redeemed. This approach was piloted in Maputo for four years and is now being scaled up in Nampula.

15.2 VINE DISSEMINATION IN RWANDA

In Rwanda, there are three projects – Scaling Up Sustainable Technologies in Agriculture and Nutrition (SUSTAIN) (eight districts); SASHA (seed systems); and FtF (10 districts). The main source of vines are the DVMs and partner multiplication sites. Five OFSP varieties have been distributed (Gihingumukungu, Terimbere, Kabode, Vita, Caceorpedo). Each household gets 150 cuttings of one variety. These bundles are labeled and communication material is distributed. Vines are distributed after presentation of the identification document e.g. ID card or passport. A message is usually sent out before the distribution, and on that day, the project tries to establish how many people got the message.

SUSTAIN and FtF have developed dissemination books that are filled by season, so as to avoid loss of data. After partners use them to disseminate, they send the information back to CIP for data entry using CSPro.

Prior to dissemination, a meeting is held and the site where farmers will meet is identified. The farmers are informed about the number going to each site. Vines are cut, weighed, labeled and transported. Beneficiaries receive a preliminary training on project, OFSP vine, nutrition and agronomic information. Communication materials, such as labels, how to cook OFSP and agronomic practices are distributed. Then, the real distribution takes place against signatures of the beneficiaries. The books are checked and sent to CIP, where the data is digitized using CSPro.

Some lessons learned include: the need for proper training for everyone involved in dissemination; collection of forms from the field as soon as possible and checking data recorded directly in the field.

15.3 SUMMARY OF DISCUSSION

- Use of a book to capture dissemination data has the advantage of a big page size; with ODK one can take a picture of that sheet and send it in for processing to a central location.
- Rwanda is using CSPro, ODK is only used in the surveys.
- There were concerns that free vine dissemination could distort the market. According to the presenters, in Mozambique, there are two types of projects; there is no charge for one, and for VISTA, they are charged a subsidized fee for a bundle of vines. In Rwanda, this discussion started in 2009/ 2010. Theoretically, it was expected that subsidies would lessen the cost of trying out new technologies by vulnerable households, who would then buy the planting material.
- Everyone is interested in OFSP roots but subsidized planting material is still dominant because of the non-governmental organizations (NGOs). Many of DVMs cannot grow enough for institutions, so there is a market but the size of that market cannot be

estimated. It is hard to determine whether DVMs would sell as much as they do now if there was no institutional market.

- Use of paper forms is a bottleneck, and it takes too much time to record names. FtF Malawi is piloting the use of barcodes with 3,000 farmers. The technician collects data when vouchers are distributed. After that, the DVM scans the barcode whenever the voucher is redeemed. This is anticipated to remove the paperwork from the process. Each card costs 40 cents. It sounds expensive but when compared to the long-term costs of the other manual methods, it ends up being cheaper. A cost comparison would be interesting.
- Telephone numbers help to trace the households and confirm that they received the vines. FtF requires surveys regularly, and so the numbers help in tracing. Where people don't have phone numbers, those of community leaders are used.

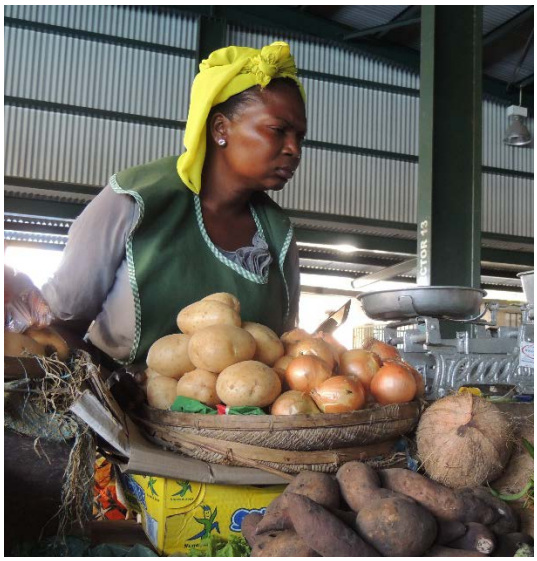
16 MODULE 10: PRICE INFORMATION

Srini Rajendran

Linking smallholders to markets with appropriate price information improves their bargaining power with traders, increases their access to relevant information and knowledge of markets and increases efficiencies along the market chain.

Prices are determined by the demand and supply of commodities over time, which fluctuates on the basis of the nature of produce perishability and seasonality. Sweetpotato is highly perishable and therefore vulnerable to price volatility. The objective of the module is to provide timely market information for sweetpotato growers and to understand seasonal price fluctuations to better plan sweetpotato marketing strategies.

The type of commodity is white-fleshed, yellow-fleshed, orange-fleshed, and mixed sweetpotato (more than one flesh type). This helps to determine if a premium price emerges for OFSP compared to WFSP over time. Additionally, the major substitute for the sweetpotato in that market will be collected (it varies by country and market).



Data is collected weekly in at least two important sweetpotato markets. The target audience for data collection is retailers. A minimum of two retail traders is recommended. Digital scales should be used to weigh the roots sold at the retail level. A table of relevant conversion rates for bags and baskets in common use must be developed for each country. It was further agreed that getting wholesale data would be too complex.

The structure of the questionnaire is as follows:

- **G**eographic location – administrative of country
- Market structure – the elements of market structure include the number and size distribution of firms/players, entry conditions, and the extent of differentiation
- Market conduct - pricing policies of business firms are an important component of the firm's conduct (i.e., their day-to-day behavior)
- Market performance – measured through pricing efficiency

There have been concerns about the cost of digital scales, which could be high depending on the number of markets. It was recommended that those that go up to 5kgs could be more cost-efficient because they would reduce the cost of going to the market. Another participant suggested that there was no need for many scales because they can be used at different markets every day.

16.1 SUMMARY OF DISCUSSION

- It is difficult to count people in large wholesale markets, and to tell who the buyer is. Sometimes wholesalers buy roots and sell them immediately. To address this, the manual provides information about how to get a snapshot of the differences in the number of sweetpotato sellers – this is intended to capture some trends.
- In VISTA Malawi, the government's Planning Department collects data in key markets two times a week as they collect pricing data for other commodities. They interview around three retailers and the form distinguishes between varieties. They get an allowance for that. The next step is going to be analysis and development of a calendar.
- In Uganda, a form has been designed and the market and trade managers are liaising with government agents to collect data every month. SeFaMaCo uses them to collect data for bananas and sweetpotato; but the data is not differentiated per variety.
- In the Jumpstarting project, data is collected twice a month using ODK, and then it is sent to the server. The number of retailers interviewed ranges between five and ten.

17 FIELD VISIT

The field trip took place on 1st February 2017. First, participants went to Instituto de Investigação Agrária de Moçambique (IIAM), Maputo, where they toured the CIP offices, labs and screen houses. After that, they went on a field visit to Musele in Moamba district, about 50 km from Maputo City. The purpose of this visit was to witness demonstration of practical strategies for collecting indicator data during mass vine distribution event. Participants observed and participated in the actual vine dissemination exercise, and how data is collected. About 140 farmers received 5-8kgs of vines each from two varieties. In the afternoon, participants were divided into two groups. One group visited the wholesalers market, while another visited the Maputo Central retail market. At the markets, they practiced how to use Module 10 of the MLE manual to collect price information.

17.1 FEEDBACK FROM THE FIELD VISIT

Stella Nordhagen

During the feedback session, participants were asked the following questions: (i) what went well? (ii) what could be improved? These questions were intended to guide participants to reflect on what they had seen, experienced and learned from the field trip.

17.1.1 VINE DISSEMINATION

Participants made the following observations:

- It was good to let one of the people enact how they plant vines, and then demonstrate how they can plant correctly and harvest more if they cut the vines up. In some cases, such a demonstration has been useful, but it is not an effective way to teach people during mass distribution. Using DVMs has been found to be more effective, because you see actual plots. In addition, when you demonstrate using the local leader, people are more likely to emulate the practice.

- It is possible to distribute two varieties at the same time. When each is labeled by name, it is easier to identify them during the distribution exercise and to trace it in the field.
- Extension agents are told to ask farmers to prepare the land in advance, so that when they get the material, they plant immediately. Monitoring is also a good practice.
- There were many old people and women with children, but no young people. This is because the area is close to South Africa, and there is a culture of sending young people across to South Africa for some time.

The following improvements were suggested:

- It would be better to fill forms out before the distribution and leave space for signing. This will ensure that all the forms are completely filled. Information on whether beneficiaries intend to plant in lowlands or uplands should be captured.
- There should be at least three well-trained extension agents, especially when there are big groups of up to 200 beneficiaries.
- In Mozambique, only four extension agents support sweetpotato work. Partnership with other organizations could help to increase the level of support.
- There should be better preparation before distribution. For example, vines should be bundled in advance to reduce disparities in the weight and ensure that farmers get exactly what they are promised.
- Vines should be pre-labeled using robust labels that don't break easily. Other methods tried include using pointed sticks, which can be stuck in the ground, it is effective if the right label is used.
- Communities should be involved in vine distribution e.g. through committees, or equal division of vines. Distribution can also be done in farmer units, using facilitators (representatives from local farmer associations with the ability to mobilize farmers). These people should be trained and put in charge of registration and recording. Before vines are sent, they would communicate the number of farmers so that adequate vines are delivered.
- Extension agents could use the opportunity to teach farmers how to conserve vines and to pass on nutrition information and agronomic messages. They could reward those who understand what they have been trained on. After training, brochures should be given as takeaway material. Even if the beneficiaries cannot read, someone else could read for them.
- Provision of agronomic practice does not happen instantly. A two-day training before distribution of vines should be considered.
- During vine distribution, an emergency maize distribution was also taking place. There should be a way of coordinating activities among stakeholders to avoid such occurrences.

17.1.2 MARKET VISIT

Some retailers had set the same price for WFSP and OFSP roots. This differs from the price data collected which showed a variance in prices. However, the decision could be driven by the fear that setting a premium price for OFSP might result in non-sale. There was a high representation of women and most of the root sellers were in uniform. This is because during promotion activities in the four markets that CIP works and the wholesale market in Manica, they were given t-shirts, capulanas and other gifts.

The following improvements were suggested:

- The forms for collecting market data caused some challenges among participants. For example, some of the variables were not applicable for the respondents, or the price was the same for all roots.
- To capture information about units, one would need to go to different markets. There were not enough fields to capture all the information from the farmers. As a way forward, it was suggested that a value chain analysis should be done first, and then the monitoring data collected later on.

18 MONITORING ADOPTION ON A SMALL BUDGET

Roland Brouwer

Scaling Up OFSP Through Agriculture and Nutrition (SUSTAIN) is a regional five-year project whose implementation in five countries started in 2014. The project seeks to scale up OFSP through an approach that links seed systems to nutrition and the value chain, with each country aligning this approach to its own local context.

Monitoring is done through "SMILER" forms, monthly reports to each other and quarterly reports to the donor, Department for International Development. Evaluation is done by Michigan State University, an external partner. In Rwanda, randomized controlled trial is underway, and in Malawi and Kenya, qualitative studies are being undertaken, also by Michigan State University. In Mozambique, there was no evaluation plan. Therefore, SUSTAIN Mozambique has come up with a '*lite'* version that works on a small budget and takes into consideration the fact that people have little time and should not be burdened by the projects MLE work.

There are two operational areas in Mozambique, Maputo and Beira, and implementation of project activities is done through national non-governmental implementation partners Agência de Desenvolvimento Económico da Província de Manica (ADEM) and União de Cooperativas Agrícolas de Marracuene (UCAM). A network of facilitators were recruited in target communities; they are responsible for mobilization, distribution and nutrition information. With this approach, it has been possible to increase the role of partners and facilitators in MLE; this is a form of empowerment. Currently no MLE is undertaken directly by the project. To facilitate the process, the tools have been designed to be quick to use and easy to handle.

18.1 TOOLS USED TO SHOW PROGRESS

The tools are in line with the size of the investment. In Beira, an annual monitoring survey of cropping systems and phased out rollout was done thrice in Manica Province and twice in Nhamatanda district during the month of December 2016. In Beira and Dondo district it was done once and the second one was planned for April 2017. A simplified questionnaire captures demographics, livelihoods, sweetpotato diet, and information channels. The enumerators are from ADEM. For the Maputo area, survey among registered beneficiaries is done by phone. The annual monitoring survey of cropping systems cost $10,000 dollars and the '*liter*' tool for all areas costs about $0.5 per questionnaire.

The survey by community members uses a simple questionnaire covering planting, harvesting, and selling (both corridors). It allows for estimating indirect beneficiaries, yield, consumption etc. and can be implemented by people with minimum literacy, followed by a community meeting to get clarifications.

Market monitoring is done by someone who follows up OFSP samples that are bought, weighed, counted and where possible identified by variety. The questions are informal so it does not look like research and it covers questions of price and turnover among others.

General outcomes data differs by district. Chimoio and Gondola are urban, Macare, Manica, Nhamatanda are agrarian and Manica and Sussundenga are market-oriented. The DDS also differ across districts. While the data shows that children have significantly worse diets than adults, none of the scores is adequate and their reliability is questionable.

18.2 SOME CONSIDERATIONS: OPPORTUNITIES AND CHALLENGES

Forty-nine people from ADEM were used. Each of them conducted 14 interviews, and they took three days to complete the survey at a cheaper cost of $14 per person amounting to $10 per form. The sample was large – 588 households in seven districts. As they were locally based, there was little logistics involved and all the tasks were synchronized i.e. two weeks data collection, three weeks codification and one week of reporting.

However, they had low literacy and little experience and were so dispersed that monitoring was difficult. The facilitators monitored their own work. This is good because they have a better understanding of what is important for the project. At the same time, they run a risk of painting a rosy picture. To avoid this, the idea of using a panel study was seriously considered, but abandoned because it was not feasible.

The approach empowers and strengthens responsibility and capacity of partners and facilitators but also requires input and dedication from CIP.

This case shows that it is possible to monitor adoption with relatively cheap tools, using a combination of techniques. Taking the approach forward would require that issues of quality, control and empowerment of partners and beneficiaries to collect data are explored in more depth.

18.3 SUMMARY OF DISCUSSION

- Sampling is a problem because it requires the use of a list of households for random selection. In the absence of such a list, sampling must be done physically. The team uses bicycles that were provided to households, but follow up is difficult.
- The data for dietary diversity is good enough to do all kinds of analysis, so it would be great to analyze the significant differences at district level to see what the cause is.
- Presentations should provide data on the costs and cost drivers so that people derive gross margins. Some of this information is available. For example, SUSTAIN Mozambique did a value chain study with NRI that tracks the prices in different levels of markets; the main costs are transport. Other costs are attributed to taxation.
- While the Central market price is fixed, in the farmer market, a lot of negotiation takes place and it is very fast; so monitoring the prices is very difficult. Since they pay taxes, the tax collector writes down the number of bags – this is however not very diligently undertaken.
- Involving communities is a good way of monitoring on a small budget. Success of data collection depends on how community members are trained. Inbuilt systems of data verification and cleaning are necessary to deal with positive bias.

19 VISTA MOZAMBIQUE – MONITORING AND EVALUATION PLAN

Abdul Naico

The goal of VISTA Mozambique is to contribute to improved nutrition, food security and incomes of smallholder farming families through increased production and better utilization of nutritious OFSP varieties, especially by those most at risk of vitamin A deficiency - children under five years of age and pregnant and lactating women.

The specific objectives are:

1. Increased production of OFSP among at least 102,500 direct and 375,000 indirect beneficiary households through use of productive, locally adapted varieties, quality planting material, and sustainable agricultural practices
2. Increased consumption of OFSP by children under five years of age and women in at least 102,500 beneficiary households vulnerable to vitamin A and other forms of malnutrition
3. Increased agricultural incomes among at least 10,000 households from sales of OFSP roots in local and urban markets, including fresh root and leaf markets, institutional markets, and commercial processing

The goal and objectives of VISTA are aligned to the two main objectives of FtF in Mozambique:

1. Inclusive agriculture sector growth, and
2. Improved nutritional status of Mozambicans, especially children under five and pregnant and lactating women

The project will directly contribute the following USAID/FtF Intermediate Results (IR):

- IR-1: Improved agricultural productivity
- IR-2: Expanding markets and trade
- IR-7: Improved nutrition-related behaviors, and
- IR-8: Improved use of maternal and child health and nutrition services

19.1 FEED THE FUTURE MLE TEMPLATE

The template used for the Feed the Future (FtF) projects has the following information:

I. Introduction
    Logical framework (purpose/objective I)
    Logical framework (purpose/objective II)
    Logical framework (purpose/objective III)
II. The Activity's logical framework
III. Monitoring and Evaluation Plan
    A. Responsibility for performance indicator data collection
    B. Types of indicators
    D. Quarterly reporting requirements
    E. Performance reviews
    F. Assessing data quality
    G. Evaluation activities and special studies
    H. Review and updating of M&E Plan
Annex A: performance indicator reference sheets
Annex B: performance indicator targets
Annex C: performance management task schedule

It is critical to be realistic about targets set and the human resources that are required. The target should align with the indicators and the assumptions for each target well described. The indicators should link in to what the government priorities are. The indicator definitions in the United States Government (USG) manual are generic, but can be adjusted slightly to customize to the project.

19.2 DATA COLLECTION MECHANISMS

Data collection methods should be as precise as possible, and as time goes on, they can be refined. These methods include:

- Agronomic and cultural practices: (protocols of the agronomic trials will be designed to collect data from the field, some tools will be developed under CSPro and ODK collect)
- Multiplication and distribution of sweetpotato planting material (track forms/vouchers/lists previously prepared by the agronomists and M&E focal point)
- Trainings, meetings, field days, promotions (through the list of participants)
- Beneficiaries surveys (baselines surveys, midterm and endline surveys)

The following evaluation/study subjects are proposed:

- Evaluation of the efficiency of Triple S method in Nampula and Zambezia provinces
- Efficiency of clean planting material planted in open plots versus the materials from the net tunnel
- Identification of varieties with the most important traits for juice and bread: Evaluation of rural versus urban preferences
- Willingness to pay for the vines and commercial roots

20 MONITORING, LEARNING AND EVALUATON PLAN

Ignatius Abaijuka

The objective of the presentation was to share the importance of the MLE plan in project management. M&E is a support function, it is the work of everyone in the organization. The MLE plan is a user manual that can be handed over to the M&E successor in case of job change.

The components are as follows:

1. Narrative description: This is a brief description of the project background, target beneficiaries, objectives, project goal, outcomes and outputs, project area of influence/ geographical area and summary of implementation approach. It should include a description of the monitoring system, evaluation design, data collection methodology, Management Information System, reporting structure and the personnel needed.
2. M&E Plan in "expanded" logframe format: This requires information on indicator and indicator definition, unit of measurement, baseline value, end of project target, data type and data source, method of data collection or calculation, frequency and schedule of data collection and the responsible person.
3. Performance tracking table: Baseline and targets should be based on secondary data, and updated after the baseline survey. The targets should be set throughout the implementation period with each target having corresponding column for 'actuals'. The table should be updated annually with actuals after submitting and confirming annual report.
4. M&E Activity Schedule: It indicates when key M&E activities will be undertaken and who will be responsible.
5. Detailed baseline survey design.

USAID has five data quality principles which must be included into the MLE plan. The major issues that must be addressed are the M&E system level, focus of Data Quality Assessment (DQA), frequency of reporting and the person responsible.

20.1 SUMMARY OF DISCUSSION

There should be baseline references for all indicators. Most of the studies are related to ongoing activities, which already have protocols. For surveys, FtF projects have a guideline, and there is always someone at USAID who can provide M&E support.

One journal paper stated that there was very little nutrition impact of food security projects. In the MLE manual, a module to collect data on frequency of vitamin A intake is included as a simple way of determining the potential deficiency. Another way of gauging vitamin A intake could be through quantity of OFSP consumed at household level. There is a table that provides the quantity of intake and corresponding vitamin A. Furthermore, in the current version of FtF, there is specific mention of children 6-23 consuming biofortified foods, and mothers and pregnant mothers consuming enriched foods.

Data quality is important to all projects. One way of improving quality would be to share research and evaluation designs and methods for feedback before data collection. A DQA is recommended every year, even though the formal DQA is done first after six months and then

after three years. About 5-10% of the FtF budget should go into M&E as a general rule, but the amount is not specified. Some projects do a good job with a small budget, so it is clearly not the amount of money but the process that matters.

To successfully implement USAID funded projects, it is important to follow all the tools and adopt all the indicators that are provided. The USAID website has all the information. Timely communication of project activities is very important for a healthy relationship with USAID.

FtF has a good manual for area estimation. The VISTA project has piloted the crop cut method in five districts in Nampula, and the data is being analyzed. This method will be compared with the current method, which usually compares the area against number of vines given to DVMs. The variance between these methods will be determined. Preliminary results show no large difference, but the complete results are expected by the beginning of March 2017.

To avoid duplication of indicators, the FtF M&E team stayed behind for an extra day during the 2016 MLE CoP meeting to work together, and they are in constant communication with one another.

The Malawi project is a nutrition sensitive project, so some indicators do not have to be reported on, e.g. diet diversity. Linking vitamin A to OFSP have new disaggregates e.g. legumes, roots, tubers, etc., and not as an independent indicator.

21 FEED THE FUTURE MALAWI – MONITORING AND EVALUATION PLAN

Arthur Chibwawa

There are two main types of indicators: outcome/impact and output indicators. The former are high level and only reported via surveys, and the latter are reported based on continuous monitoring data. For example, the number to whom vines are distributed is an output indicator, but the number that applied the technology is at outcome level.

A direct beneficiary is one who comes into direct contact with a set of interventions (goods and services) provided by an activity and are the only ones counted. A household is benefiting directly if it contains at least one individual who is a direct beneficiary. If a person has been directly and sufficiently trained, but has not received vines, they can be captured under the indicator on training. The level of sufficiency should be clearly outlined, e.g. one who goes for a field day has come into contact, but not trained. Direct beneficiaries do not include those that buy; because they are not factored into the project design. However, it should be possible to include them in other projects.

For OFSP there are two commodities: vine and root production. The gross margin should be explained for these two. Gross margin indicator is very controversial because of the way it is computed and measured. There is also a big difference in the normal way that costing and reporting are done. It is reported under outcome and it is survey-based, and it has to be adjusted by the number of people in the zone of influence reached in that year.

In theory one can estimate how much a farmer can harvest; but in reality, piecemeal harvesting is very real. Roots that go into household consumption are sometimes not captured under total production. This is a discussion that is ongoing with the Bureau of Agriculture. For the roots,

after estimating the total production, the total sales must be estimated using the local unit, often it has to be captured indirectly.

There are some challenges inherent in computing gross margin. When simulating different scenarios, huge differences are found in gender and between large and small families especially as relates to labor. When data is disaggregated, there is a clear difference between households that had children and no adults, and those that had more females or more males.

21.1 SUMMARY OF DISCUSSION

- When collecting data on production costs, family labor is not captured because it is complicated, but there is a way that the data collected can be used to draw information about the contribution of the family.
- In Mozambique, there have been problems getting approval for gross margin to be used as an indicator because it also depends on the crop. This will be mentioned in a planned training on FtF indicators that is set to take place in Maputo.
- There is a lot of theoretical discussion about the opportunity cost of time and labor in small scale households. Gross margin is estimated based on how much the household has produced, not what has actually been sold. It is premised on the fact that labor and money was spent on the whole production. It is a sound calculation theoretically and it depends on location, period and season. The interpretation varies.
- Even if one was able to determine the labor, how does one value the farmers' decision making process? There should be one way of doing it to avoid this confusion.
- The calculation is done by taking average price and multiplying with the total produced, which assumes that if OFSP production considered as small business, it will not be consumed. What matters is that the method used is well explained so the reader can understand the analysis.
- This indicator is very specific to USAID and their guideline should be used. The available resources should be considered when deciding the sample size. One approach could be to select different levels of farmers, and to ensure that specific demographics e.g. gender are taken care of. It is better to do fewer, representative households that can be used for extrapolation. In Malawi, the sampling frame is the farmers reached through direct receipt of planting material, and those that are direct recipients from DVMs.
- Area measurement is a challenge; farmers are allowed to estimate, then an area calculation is done and a ratio is taken to adjust what is reported for the entire district. There is a difference when area is calculated at district level, and it is correlated with education level.
- Total quantity of targeted commodities – data is collected from a survey, mainly to get the quantities that were set aside e.g. what was already consumed, and what they anticipate to consume.
- Sweetpotato has to be reported under climate change, but there are also discussions regarding reporting on climate mitigation.
- Malawi and Uganda have two seasons, farmers get material in the first season, and expand in the second. In Malawi, one season ends in May and then farmers plant in August. Data is collected in January-February for the season ending in May. It is then reported in the next year as a straddle, which is a concept explained in the USG manual.

22 MLE IN HELEN KELLER INTERNATIONAL

Stella Nordhagen

The project is implemented in five countries. Four country projects with OFSP ended last year, and MLE is different in all of them.

There is a set of organization tools that are adapted to the particular context; agricultural and cultural context; timeframe of the project; logistical constraints, staffing and budgets; donor requirements; and the preferences of the heads of the specific country offices. Some donors, such as USAID, are very specific about the data to be collected. This could place a large burden on beneficiaries and HKI tries to avoid this through the approach that are adopted.

22.1 MAIN COMPONENTS

- Surveys are annual, it could be seasonal or if resource constrained, then baseline and endline are conducted.
- Monitoring is based on activity focused outputs.
- Quality assurance of interventions e.g. capacity building, training and so on is done using a set of tools.
- The MLE places a focus on nutrition indicators, but some go beyond that to the health ones e.g. malaria prevalence; and how health influences the ability of people to absorb nutrients; even if people are able to eat well.

22.2 SUMMARY OF DISCUSSION

- CIP projects should note that the evidence base for scale up is agriculture and nutrition. Studies have shown that nutrition education messages will determine uptake of OFSP, and not just vine dissemination. Therefore, projects should ensure that partners carry out nutrition education.
- The reason projects report under nutrition sensitive pillar is because of where the funding comes from. In Rwanda, the project has one nutrition pillar, which carries out intensive education, including Infant and Young Child Feeding (IYCF) and also marketing.
- At HKI, a project in Côte d'Ivoire that ended two years ago had a large OFSP focus. The NARI released popular varieties that were adopted, but no follow up has been done to understand how much they are being planted. When the next baseline is done, a year will have passed without project intervention.

23 PROGRESS TOWARDS HARMONIZING DEFINITIONS FOR SWEETPOTATO SEED CLASSES IN VARIOUS AFRICAN COUNTRIES

Kwame Ogero

The Seed Systems and Crop Management CoP was established in 2012 to address bottlenecks in sweetpotato seed systems in SSA. Six consultation meetings have been held so far; one large one that includes a wider group and another that takes place in December with sub-grantees receiving funds to build capacity for pre-basic seed production in 11 countries with 14 partners. Eleven online discussions have been held. Activities undertaken with the MLE CoP are DVM mapping, one cross-CoP online discussion, dissemination of planting material, and participating in joint meetings e.g. SPHI. Some members are active in both the Seed Systems and MLE CoPs.

23.1 Seed Certification

Seed systems for cereals are highly advanced compared to vegetatively propagated crops (VPCs). Sweetpotato seed production is yet to be fully commercial. Registered seed companies are not interested because they don't see commercial value due to bulkiness, high perishability of sweetpotato seed. It is now mainly produced by smallholder farmer multipliers and targeting farmers within the same localities.

One of the things the Seed Systems CoP has been working on is the development of quality seed, with progress being varied across the SPHI target countries. In sweetpotato the term 'seed' refers to quality cuttings not just 'any vine'; or botanical seed which is used for breeding. The idea was to get an understanding of the different seed classes to enable clearer communication. The progress is as follows:

- Quality assurance process whereby seed intended for domestic or international markets is controlled and inspected by official sources to guarantee consistent high quality for consumers.
- Quality attributes tested include: genetic purity, limits on seeds of other crops and weed species; germination capacity; limits on moisture content; limits on seed-borne diseases and pests; seed size and weight; seed vigor; seed viability.

23.2 QUALITY DECLARED SEED AND QUALITY DECLARED PLANTING MATERIAL

In 1993, FAO published its first Quality Declared Seed System (QDS) Manual – Technical guidelines on standards and procedures; it captured 92 crop species reproduced by means of true seeds. This was updated in 2003. One of the recommendations from the 2003 meeting was the need for an expert consultation on a quality assurance scheme for VPCs. FAO proposed to collaborate with CIP and other VPC experts in developing standards for quality declared planting material (QDPM) for VPCs. An Expert Consultation was held at CIP headquarters in Lima, Peru, from 27th to 29th November 2007 with the participation of 12 international experts and several national experts for VPCs. Participants agreed upon the common principles and structure of the protocols as well as standards for QDPM for the different VPCs.

Some countries have made good progress towards developing standards for different classes of sweetpotato seed. Ethiopia has gazetted QDS and other classes have been submitted. Tanzania is awaiting ministerial assent and Rwanda and Uganda have reached the stage of consultation.

There is need to align the terms used with those already in the national seed laws. The Seed Systems CoP established a working group to look at the definitions of terminologies used for sweetpotato seed classes in different countries with an aim of reaching a consensus on the definitions. The members have met three times during the Seed Systems CoP meetings and regularly exchange information online.

23.3 WAY FORWARD FOR THE SEED SYSTEMS COP

The way forward for the CoP is:

- **F**urther discussions on key outstanding issues e.g. number of generations and ratoons
- Share with the Principle Investigators of Sub-grantees for pre-basic seed, NARI breeders and seed system specialists for their inputs
- Refine and popularize use of the definitions across countries and CoPs
- Understanding the definitions will make it easier for MLE colleagues to collect data on the quantity of different seed classes produced in various countries and to map multipliers as per the seed class produced

The Seed Systems CoP can learn from the MLE CoP how to use ODK to collect data on seed production, and use crop cut method for root yield estimation. There is need for synergy in seed production and dissemination activities, as seed system specialists are focusing on production of quality seed and capacity building while MLE specialists track progress towards achieving the set targets.

23.4 SUMMARY OF DISCUSSION

The following discussion took place after the presentation.

- Rewarding of scientists for their breeding work: participation by private companies in sweetpotato seed production is low but it is something under development. The 'missing middle' component within seed systems builds capacities of some farmer multipliers to produce quality basic seed on a cost-share basis. These will act as a link between NARIs who produce pre-basic seed and farmers. The basic multipliers buy pre-basic seed from

NARIs then multiply as basic. The money paid to the NARIs goes into a revolving fund to ensure sustainability.

- The seed classes recognized in national seed laws in various countries are breeder to QDS. However, definitions may differ. Harmonizing the terminologies will help to compare quality standards at different levels across countries.
- Emergency seed is not a seed class, but seed that is distributed when there is a disaster. Seed from any of the classes and be collected and distributed as emergency seed in the event of a disaster.
- Determining seed generations and ratoons: Generations and ratoons have also been discussed by the Seed Systems CoP. In the last consultation meeting, it was agreed that generation refers to moving from one class to another e.g. from pre-basic to basic then to certified etc. and ratoon refers to sprouts of the same generation. More brainstorming on how many ratoons you can go without compromising the quality is required.
- Efforts have been underway to improve the seed system and ensure that farmers get quality seed. Labels are critical for maintaining quality and reputation; it is the same with all crops. Lack of labels leads to some companies taking advantage of farmers during the emergency period. Labeling will help repeat business because it will help people to associate quality with the DVMs.
- Partners are being supported to develop a business plan aimed at coming up with an appropriate price for pre-basic seed. Knowledge generated here and methodologies used can help determine prices for the other classes.
- The work done by CIP and partners has been important in positioning sweetpotato as a brand. Some countries have branded OFSP as something special. We must ensure that OFSP remains a premium brand because we have spent a lot of money to position it there. In Rwanda, people go to CIP when they want first rate seed, and then they can be referred to certified DVMs. This is very important in guaranteeing the quality of material and the brand of OFSP.

24 DVM REGISTRATION-UPDATE AND FUTURE PLANS

Norman Kwikiriza

DVM registration and updates are done to track progress towards project, program and regional indicators. It provides a one stop information center for vine buyers (NGOs, commercial farmers etc.) and creates a deeper understanding of the characteristics of our DVMs. It also provides data that helps to inform on the progress towards achieving the SPHI goal.

DVM data updates are coordinated by Julius Okello Juma, Jan Low, Luka Wanjohi and Norman Kwikiriza. The data collection is done by all country M&E personnel with the support of Norman Kwikiriza whenever required.

24.1 CHALLENGES IN THE DVM MAPPING EXERCISE

- DVMs who are not directly under CIP are difficult to track
- Different tools used to collect DVM data
- Challenges of drought
- Small scale DVMs who disappear with time
- DVMs who disappear when the project closes
- Labeling of plots needs to be improved

24.2 WAY FORWARD

DVM information should be in August to facilitate preparation of the annual SPHI report. Projects that need support for DVM mapping should fill out a table provided by the presenter. In addition to location information, it is important to collect demographic data and to separate data about multipliers that have dropped out, and those that are directly working with CIP.

24.3 SUMMARY OF DISCUSSION

- The Mozambique SUSTAIN data was done but it does not show on the system. This is because six DVMs that were submitted had missed the deadline for the annual update, but the information will be updated.
- There should be one platform for reporting on DVMs, the details should include those that have been dropped.
- There is a study trying to compare DVMs in Ethiopia, Tanzania Uganda, Okuku should include other countries.
- Information on the DVM registration and update is shared with the Seed Systems CoP because they are the ones establishing and managing the DVMs.
- When the ODK tools were developed, DVM registration and DVM monitoring forms were included so that people could update the information whenever they went for field visits. It seems some people found the tools too complicated and do not use them.
- In Burkina Faso, a bi-weekly monitoring was set up with the extension agents, but the DVMs tended to clear their plots before these agents collected data. Even when trying to estimate, the figures given did not tally with the actual measurements.
- There were significant challenges in the table formats when they were downloaded. In some tables, the data did not come with the IDs, so it was difficult to merge them. This needs to be rectified.

25 PRESENTATION OF MONITORING DASHBOARD

Godfrey Mulongo / Luka Wanjohi

Efforts to improve the quality of the reported data have seen SPHI partners embark on the development of a common Monitoring, Learning and Evaluation (MLE) manual including standardized paper and electronic data collection tools. The electronic forms are based on Open Data Kit (ODK) and CSPro. The proposed SPHI dashboard will aggregate data from the various partners and secondary sources and present updated summaries to members of the wider sweetpotato community through the Sweetpotato Knowledge Portal.

25.1 Dashboard Metrics

Below is brief description of the metrics to be tracked by the proposed dashboard:

Trends in sweetpotato acreage

- Trends in sweetpotato acreage in Africa relative to major food staples and sweetpotato acreage in SPHI countries. These data are collected from secondary sources such as FAO.
- Trends in sweetpotato production.
- Trends in sweetpotato production in tons across SPHI countries. These data are collected from secondary sources.

Progress in dissemination

Progress in dissemination of quality sweetpotato planting materials to farmers by:

- Variety release by country
- Progress in reaching 10 million beneficiaries
- Progress in reaching beneficiaries by country: These are compiled from SPHI partners, now being collected using standardized tools by most partners
- Evidence of improvement in diet quality
- Changes in mean household dietary score. Computed from SPHI partners' reports and datasets. Standardized ODK data collection form already in use by some partners
- Evidence of improvement in value of sweetpotato production
- Household level sweetpotato production trends as reported by SPHI partners. Standard ODK data collection forms already in use by some partners
- Improvement in access to sweetpotato planting material
- Map of DVMs by country, disaggregated by gender
- A standard ODK form has been used to register and monitor over 500 DVMs in nine SPHI countries since 2014

A software module will be developed to sync data between the current ODK server and the dashboard to enable real time updating of metrics underpinned by data collected using ODK. The rest of the data will be updated via a web interface for now. The dashboard will be piloted in Rwanda and then hosted on portal. Within CIP, Godfrey committed to doing a dashboard aligned to the CIP MLE strategy, and this would be very well suited to that.

26 LOOKING AHEAD

Julius Okello

To conclude the meeting, it was highlighted that there are still some matters that need agreement: These include: (i) definition of DVM; and (ii) best practices in mass distribution. The plan for DVM mapping required completion to identify where it would be done, the people in charge, when it would be done and required support. West Africa was suggested as the venue for the next MLE meeting in 2018.

27 MEETING EVALUATION

The MLE CoP meeting was attended by 28 participants who are M&E specialists and project managers from various research organizations located across nine countries of SSA. Majority (84.6%) of them were from CIP organizations. Out of the 28 participants, majority (82.1%) were males. The highest percentage of participants were from Mozambique (25%), followed by Kenya (21.4%), Uganda (14.3%) and 10.7% each from Malawi and Rwanda. Nearly two-thirds (67.8%) of the participants was in the age group of 30-45 years.

The evaluation results indicate that 28.6% of them use ODK only, 25% use both ODK and CSPro, 7.1% use CSPro only, while, 39.3% use none. Majority (85.2%) of them were found to be satisfied with the meeting outcome. About two-thirds (67.9%) of the participants rated the content quality of presentations at least good. Forty-six percent rated the organization of the meeting as good, while 21.4% rated it as very good. Similarly, majority (82.1%) of the respondents were satisfied with the quality and usefulness of the field trip. Sixty-eight percent of the respondents felt that the quality and usefulness of the presentation on the tools in the manual was good. Regarding quality and usefulness of ODK, CSPro and STATA session, 14% of the participants felt that it was poor, but 64.3% participants were alright with quality and usefulness of this session. The remaining 21% felt that this particular session was good. Around 71% of participants rated the quality and usefulness of the presentation on the FtF monitoring indicators and planning as good. An overwhelming proportion (96.4%) felt it is useful to get feedback from breeders and seed systems. Fifty-seven percent felt the need for further training in-country on the use of the manual. Out of the total respondents, 57.1% had just the basic knowledge of CSPro, intermediate knowledge (10.7%), while, 14.3% had advanced knowledge. About four-fifth of them (82.1%) expressed interest in having further training on CSPro. With regard to the knowledge of STATA, 42.9% and 32.1% had intermediate and basic knowledge respectively. A mere 10.7% of the respondents had advanced STATA knowledge. A vast majority of them (85.2%) showed willingness for having further training of the software.

Respondents' response on the usage of various modules in their program has been very encouraging. 77.8% are likely to use design and description of the collection effort and how to use this manual; household background information (85.7%); trends in using sweet potato (76%.0); production and sales volumes (85.2%); measurement of household food security (80.8%); DDS (75.0%); frequency of consumption of vitamin A-rich foods (81.5%); capturing sweet potato vine dissemination (74.1%); yield estimation using crop cuts (85.2%) and sweetpotato root market prices (64.3%).

The following topics were suggested by participants for future MLE CoP meetings.

- Exclusive training on Theory of Changes and Impact Assessment tools (RCT, WTP etc) and Survey design for evaluating the program intervention and sampling design.
- Statistical software training program and CSPro training, more time for STATA program, more time for practical excises.
- MLE report writing skills and database management practices (data quality auditing).
- Other topics (how to estimate postharvest losses, linking genomics/breeding activities to M&E, how to monitor sweetpotato diseases, linkages between yield and climate change, what is the definition of vine multipliers).

ANNEXES

ANNEX 1: SUMMARIES OF ONLINE DISCUSSIONS

MLE Discussion Topic #1: Production metrics in Sweetpotato Projects – How do we measure output, area, yield and GM?

Introduction and Discussion Question

Majority of the current projects in the sweetpotato portfolio of projects in SSA have strong agricultural components. These range from breeding for abiotic and biotic stresses, yield, and nutrition to farmer training on good crop and pest management practices. Because donors fund these activities, such projects usually promise to *monitor and report* changes in production (or output), area under improved varieties from the funded or pre-funded activities, and hence, the crop yield from the use of promoted varieties.

These envisaged farm-level physical changes are certainly expected to have some short and medium term impact on farm households. Increased tolerance to biotic and abiotic stresses could result in increased production, and so could the adoption of higher yielding varieties. At the same time use of improved crop management practices (early planting, spacing, timely weeding and timely harvesting) is expected to increase sweetpotato harvest. The increased in production is, in turn, expected to increase marketable surpluses. Consequently, majority of the sweetpotato projects anticipate increase in sales and income from sweetpotato, and promise to*monitor and report* changes in sales, income and/or gross margin.

Apart from the individual projects, the Sweetpotato for Profit and Health Initiative (SPHI) also promises to *monitor and report* on these metrics as part of the annual updates over its 10 life. Specifically, SPHI needs to report on sweetpotato production (output), area under sweetpotato, output/unit area (yield), sales per household, and income from sweetpotato. These data are expected to come from our projects.

A look at the literature on measurement of output, and especially yield, in root and tuber crops points to major challenges: i) that there is no perfect method for measuring yields, ii) when harvest is piecemeal/staggered, the most appropriate methods are labor and time intensive, and also costly, and iii) measuring area/acreage under sweetpotato is often tough.

The foregoing raises the following questions:

1) Are we measuring these data in our projects? If so, how are we estimating production and yield? That is, which one of the yield estimation method(s) listed in the attached documents are we applying? If different, please state. And what challenges are we facing?

2) How are we dealing with piecemeal/staggered harvest of the roots over the season? Do we include these in our production figures?

3) What goes into our gross margin (GM) computations? That is: how do we obtain data on sales that credibly reflect the total sale by a household in a season when sales could also be piece-meal/staggered? How do we compute the income (revenue) from these sales?

4) What method should we be using to gather this data: Household survey? Sub-sample survey? On-farm trial? etc. And what are the experiences?

5) Lastly, and most importantly, how can we adopt common methods of measurements that will facilitate aggregation across projects? What will work broadly (over many countries) and what won't work?

Please share what you are doing, the challenges you are encountering and how address them.

Summary of discussion points

The key points of the discussion are summarized below.

1. Yields can be estimated based on trials conducted in farmers' fields but co-managed by a researcher. This method however has the disadvantage that the yields do not reflect farmer's production and socioeconomic conditions/environment, as well as the skill levels.
2. You can rely on recall data on household production and area, but you need to use good quality enumerators and be prepared spend sufficient time training on techniques for collecting harvest data under piecemeal harvest conditions.
3. Use of farmer field – farmer managed crop cuts are the most accurate. However, this method can be costly and time consuming. One also still needs to be careful and plan to minimize piecemeal harvest "for food".
4. Feed the Future has a standard guide/protocol for estimating yield. However, this will still run into same challenges of estimation and accuracy

Way forward

This discussion takehome points:

- Use crop cuts to get more accurate estimates but minimize researcher influence
- If using recall data collection, use good quality enumerators and spend sufficient time training on how to collect piecemeal harvest data

Discussion Topic #2-2016: Sweetpotato variety identification

Introduction and Discussion Question

We all during household surveys are usually keen to collect information on the different kinds and verities of sweetpotato. In some of the communities we target with sweetpotato projects, farmers normally be growing yellow, white and/or purple sweetpotato. More recently, and due to the biofortification of sweetpotato, the major interest during the survey has been to collect information on not only the type (i.e., white, yellow, purple or orange) but also the variety of sweetpotato type being grown by a household. Here is where serious challenges begin. Experience has been that most farmers do not know the sweetpotato variety being grown or if they have a name for it, it will often not be helpful in the identification of the sweetpotato being planted. Indeed, farmers often name and rename sweetpotato varieties based on, among others, the scientist who introduces it in the community, performance in the field, physiological characteristics, and even physical appearance. As a result, its often the case that one variety of sweetpotato ends up having several names, and this could be even in just one village.

There is currently a lot of interest in the unambiguous identification of crop varieties for the purpose of estimating the adoption of improved varieties. One major donor remarked last year that "it's inconceivable to think of studying the adoption of improved crop varieties without proper mechanism/method of identifying varieties grown by farmers". A few methods are currently being piloted, with DNA fingerprinting as the favorite. But this method is both expensive and requires an even more expensive prior preparation in the form of establishing a DNA library of all existing varieties of the target crop. For sweetpotato, such library does not exist as yet. Nonetheless, there certainly must be other methods that have been used before or are being used in variety identification that we can apply to sweetpotato. What are they?

More specifically, imagine for a moment that your project is interested in comparing the performance (yield, gross margin, or establishment rate, etc) of a known orange-fleshed

sweetpotato (say Kabode, aka Naspot 10 O) with a popular local variety. Further, imagine that the communities where the project is being implemented has several types and varieties of sweetpotato, including the orange types in which Kabode is just one. You of course do not know what the different households are growing and the first step will be to find this out during the interview. What strategy/method will you use to identify the Kabode and the popular local variety? Kindly share how you would go about identifying Kabode and the local variety. Specifically, do share:

i) What you do or have done to identify the varieties, and that you would apply for this case?

ii) Any methods you may know of that we can use as CoP in identifying varieties, and experiences in terms of its application and time, staff and financial costs.

iii) Literature you may have or are aware of.

iv) Current discourse on this topic you are aware of.

Summary of discussion points

The key points of the discussion are summarized below.

1. One way to identify varieties of sweetpotato is look at the morphological features of the leaves, roots and – for a more technical person – the arrangement of the stigma/stamens and anthers and petals which are found inside the flower. There are simple tests which can be to help with the identification process.
2. Take advantage of local knowledge. In each community there is likely to be a person who has a very good knowledge of the different sweetpotato varieties. Spending time with such a person, or having her/him help in the identification process, can greatly reduce the misidentification. The person who knows the varieties might be able to identify the varieties based on morphological features, cooking characteristics, growth period – such a person can help the enumerators to identify many of the varieties.
3. Use local experts – especially the knowledgeable local extension staff. This can also be a scientist or technician with vast knowledge of sweetpotato varieties.
4. Use of fingerprinting would be the best and costs are coming down, but requires one to have a reference library with which to identify samples (accessions) from the field. This reference library still does not exist for sweetpotato
5. One can also carry laminated pictures with key morphological features of the varieties of interest in a monitoring/tracking survey

Way forward

This discussion takehome points:

- Use local experts and local knowledge as much as possible. Local people can tell most of the varieties they have had for a long time
- Finger printing would be most ideal in variety identification, but sweetpotato still does not have a full reference library with which to compare collections
- Label, label, label – during distributions, we should always label materials. This will reduce the temptation by the communities to give the material their own names

Discussion topic #3: M&E data quality management 1- data accuracy, sysmis and extreme values

Introduction and Discussion Question

In line with the last MLE meeting (in Kigali) and the Discussion topic #2, we focused on two data collection aspects that relate to data quality namely, sampling and variety identification (i.e., measurability of a variable) during data collection. In this discussion topic, the first a series that will discuss this theme, we move one step forward in M&E and survey data collection to look at two issues we often encounter once we are back from the field with the data. We focus on data accuracy and how to handle missing data and extreme values (i.e., outliers) in the collected dataset. In some way this topic slightly overlaps with the last discussion topic. This is how. In the variety identification, we encountered cases where several households could identify the same sweetpotato variety using different names. This is one aspect of data accuracy which by definition asks whether data objects accurately represent the "real-world" values they are expected to model/measure. More broadly, data accuracy problems can arise due incorrect spellings or multiple naming of a variety or variable (when stringed) or of respondents' names, addresses, and contacts, … But data accuracy can also arise due to recording of incorrect values e.g., 12 for 21 OR 50 for 5 (in the case of age (yrs), for e.g.,) and this can result in problems of extreme values (for instance if focus is young child and 50 years is recorded as age). The other problem would be when data is missing (because one forgot to fill a field, etc). These are just but a few examples of what would cause issues of data (in)accuracy, missing data and outliers. The question then is, once we have data in the preferred software and we embark on data cleaning, how do we deal with these data quality issues? Specifically:

1. How do we assess the data for accuracy? Are there some recommended procedures that we can adopt as a CoP? That is, what are the best practices, that are acceptable to the scientific community?

2. How do we handle outliers? Do we drop them, thus treat them as missing data? If we drop them, how then do we handle those missing data points that arise from truly uncollected data (unfilled fields in the questionnaire)?

3. There are, online, several techniques proposed for treating outliers. An example is the one in the u-tube link below. So the question is can we as a CoP adopt a standard uniform procedure for handling outliers? If so which one should we? And why?

http://www.youtube.com/watch?annotation_id=annotation_375935&feature=iv&src_vid=2HmopqF6V6w&v=bRdC1u9veg8

4. Is there way to treat missing data, so as to not lose on sample size (recall that most software will drop a variable when it has a missing value). Is it right/valid to substitute a missing value with computed sample mean? And can this be applied for outliers, as some schools teach?

Please share your thoughts and views on these important data quality issues that I am sure we all so often face when handling M&E and survey data. Also share literature/references and protocols you may be having or are aware of.

Summary of discussion points

The key points of the discussion are summarized below.

1. You can check for outliers by getting the mean, and using it to check other data points; a data point that is more than 2 standard deviations from the calculated mean can be regarded, using this method, as an outlier and therefore normalized. The outlier can specifically be replaced with sample mean or, in other cases, dropped that the data point

appears as missing data. One should however be careful when deciding to drop an outlier and should check the data point against the study context/background and literature.
2. If one conducting a CAPI survey using CSPro, for example, one can use Batch edit applications to catch outliers and missing values as soon as enumerators submit completed data files. You can then decide to visit to the affected households or call them back to review the affected questions. For a PAPI survey, having your data digitized while you are still in the field gives you chance to catch errors sooner than later, again making it easier to verify any case that may require a second visit or contact via phone with the affected household.
3. Using Survey Solutions (World Bank software) can also help minimize outliers if the questions are well programmed so that number that fall outside an anticipated range is flagged as "error".
4. Get as much clean data from the field as possible. This is what could be done if the questionnaire is well-designed and the supervision of data collection is very good. Catching errors while still in the field and aptly fixing them will greatly improve the quality of data

Way forward

This discussion takehome points:

- **O**ne can limit missing data and outlier problems by have good questionnaire and supervision. Errors are then caught and fixed in the field.
- Use of electronic devices such as CAPI and Survey Solutions that are programmed to detect errors can minimize the problem of sysmis and outliers.
- There are standard statistical procedures for dealing with outliers. Use these but be careful check the context before dropping or replacing outliers.

MLE CoP Discussion Topic #4 -2016: Capturing vine/seed beneficiaries in mass dissemination event

Introduction and Discussion Question

There has been a debate among some colleagues and project managers about the most practical way to capture beneficiaries during the mass dissemination of sweetpotato vines. In a way, this question actually applies to dissemination of clean seed potato for colleagues working on potato. The issue arises from the fact that the indicator we often are trying to track is, in most cases, defined as the "the number of households benefitting from ….." and, in many of the projects, there usually is interest in also knowing the "gender of the beneficiary" and/or "gender of head of the beneficiary's household". In addition, the projects often are interested to know if the households had a pregnant woman or a child under 5 years of age. Now consider the following scenario that often occurs during mass distribution event:

A project team (or its partner) arrives in a community with a truck load of clean vines/seed. The team proceeds to discuss the benefits of the vines/seed "sitting up there in the truck" and outlines the nutritional benefits, superior yield performance, early maturity, and/or tolerance to some of the devastating diseases, as the case may be. Then the time to give out the prized vines comes and the community members present (could be in hundreds) all swarm the team scrambling for vines/seed. Overwhelmed by the pushing and shoving, the team (partner) hands out the vines to any extended hand, while appealing that "those who have got vines please stay so we can register that you received vines" or the team may have some people going around writing down names of recipients. In a slightly more organized event, the community could queue. But at the end the day, the vines are all gone and there is a list of some, but not all, names. Worse still, many of the cells in the distribution form did not get filled, i.e., are blank. Did some people pick vines/seed multiple times? Did we miss to record some names? What happened – there were so many people? How do we know whether the beneficiary was male/female, given theblanks? Do these names represent households, and if they do, how do we

know which ones have a pregnant woman, a child under 5 years? These are some questions the team will be asking. The problem can extend further. Some project managers/colleagues have observed that vines given out to one individual could end up being divided among friends who missed.

We all are likely to have heard, observed or can identify with this sort of scenario.

The members, in this discussion topic, discussed and shared experiences on the most practical ways to capture: i) the number of households reached, ii) the gender of the head of households, iv) the gender of the beneficiary, iv) status of the household reached – has child under 5 years, pregnant woman. We want to specifically focus on mass distribution events. Please share your views and experiences on how we can avoid/overcome the problems narrated in the scenario above. Feel free to take it a step further to discuss how, in a situation such as the above, one can report the direct and indirect beneficiaries.

Summary of discussion points

The key points of the discussion are summarized below.

1. One effective way to target is by use of voucher/coupon. In this case the beneficiary is issued with a card that qualifies him/her to receive vines. The beneficiaries are invited to a central location where they start out by being given some "health talk" on, among others, the benefits or OFSP. This is following by handing out vines ONLY to those who have the previously given card. The issuance of the card can be done through the community health professionals (as in Kenya).
2. Beneficiaries can be directly selected through a partner/NGO. For instance, iDE in Burkina Faso went out to the community with a list of characteristics of community member they can use as a vine multiplier. Once identified, the beneficiaries then receive vines. The danger here is having "imposter multipliers" who lie that they ARE what they are not. iDE experience in this case was that more beneficiaries received vines than had been planned.
3. Have an advance team/exercise to identify and list all potential beneficiaries using a specific household targeting criteria. This allows one to identify the intended beneficiaries and not just any community member. The identification can be done with the help of local leadership or technical staff like extension workers.

Way forward

It was agreed that the best way to conduct a mass distribution is:

- Do forward planning and a lot sufficient time.
- Work with community leaders to list beneficiaries ahead of time.
- Always double-check – Dishonesty can be condoned by the same community leaders in the name of "good neighborliness" during the distribution.

AGENDA

Tentative Agenda

MLE CoP Meeting on Harmonization of SPHI Indicator Data Collection

30th January-2nd February 2017, Maputo, Mozambique

Topics	Time	Responsible person
Day 1		
1. Registration	08:00 – 08:30	Tassy/Ligia
2. Welcome & Introductions	08:30 – 08:40	Naico/Roland/Maria
3. Welcome statements	08:40 – 08:50	Julius/Jan
4. MLE CoP Update	08:50 – 09:00	Ibrahim/Julius
5. Progress in reaching the 10 million – where are we?	09:00 – 09:25	Jan
6. SPHI indicators & data collection	09:20 – 09:45	Julius/Ibrahim
• **TEA BREAK**		**Tassy/Ligia**
7. MLE Manual – Module 1: Survey description & meta data	10:15 – 11:00	Luka
8. MLE Manual – Module 2: Background information	11:00 – 13:00	Julius
• **LUNCH BREAK**	**13:00 – 14:00**	**Tassy**
9. Feedback from the breeders	14:00 – 14:30	Makunde
10. MLE Manual – Module 3&4: Production & sales	14:30 – 16:30	kirimi
• **TEA BREAK**		
11. Day 1 wrap-up & looking forward	16:30-17:00	Julius/Jan

Topics	Time	Responsible person
• **Day 2**		
12. MLE Manual – Module 5, 6 & 7: Food security & nutrition	08:30 – 13:00	Jan/Temesgen
• **TEA BREAK**		**Tassy/Ligia**
-do-	-do-	
• **LUNCH BREAK**	**13:00 – 14:00**	**Tassy/Ligia**
13. MLE Manual – Module 8: Dissemination	14:00 – 15:00	Naico/Valentine
14. Tracking with dash board	15:00-15:40	Luka/Mulongo

• **TEA BREAK**	**15:40 – 16:00**	**Tassy/Diana**
15. MLE Manual – Module 10: Market prices	16:00 – 17:00	Srini
16. Cocktail	19:00	Tassy/Ligia

Day 3		
17. Field visit: Moamba district, about 50 km from Maputo City	07:30-12:30	Naico/Roland
	Demonstration of effective strategies for collecting indicator data during mass vine distribution event. Participants learn through observation and participate in actual data collection alongside facilitators	
• **LUNCH**	**12:30 – 13:30**	**Tassy/Diana**
18. Market visits	13:30 – 16:00	Naico/Roland

Day 4		
19. Feedback from Mass Distribution event	08:30 – 9:30	Stella
20. M&E planning (FtF): Indicators, logframes, M&E plans	09:30 – 13:00	Arthur/Rachel/Ignatius
• **LUNCH**	**13:00 – 14:00**	**Tassy/Ligia**
21. Feedback from seed systems	14:00 – 14:30	
22. DVM registration – update and future plans	14:30 – 14:45	Norman
23. Looking ahead	14:45 – 15:00	Julius/Jan
24. Evaluations	15:00 – 15:30	Luka/Temesgen

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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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