COMMUNITY MANAGED SEED SECURITY MODEL (CMSS)

FACILITATOR'S GUIDE

Published by:

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Design & Printing: Inter-design Limited

Naturskyddsföreningen

This document has been produced with the financial contribution By Swedish public development co-operation aid through the Swedish Society for Nature Conservation, SSNC. The views herein shall not necessarily be taken to reflect the official opinion of SSNC or its donor.

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ACRONYMS

AFIRD	Agency for Integrated Rural Development
AT Uganda	Appropriate Technology Uganda
CBF	Community Based Facilitator
CBO	Community Based Organization
CM	Centimeter
CMSS	Community Managed Seed Security
DNA	Deoxyribonucleic Acid
EADEN	Eastern Archdiocesan Development Network
FAO	Food and Agriculture Organisation
FFS	Farmer Field Schools
GALS	Gender Action Learning Systems
GMO	Genetically Modified Organism
ISTA	International Seed Testing Association
MADDO	Masaka Diocesan Development Organisation
NAADS	National Agricultural Advisory Services
NARO	National Agricultural Research Organization
OECD	Organisation for Economic Cooperation and Development
OWC	Operation Wealth Creation
PEEST	Political Economic Ecological Social and Technological
PELUM	Participatory Ecological Land Use Management
QDS	Quality Declared Seed
RUCID	Rural Community in Development
SATNET	Sustainable Agriculture Trainers Network
SWOT	Strength Weaknesses Opportunities Threats
UNBS	Uganda National Bureau of Statistics
VAD	Voluntary Action for Development

GLOSSARY OF TERMS

Food security: This is the ability to access and enjoy adequate quantities of nutritionally balanced food for the entire household all year round.

Food sovereignty: The right of each person, community, and nation to define its own agriculture and food policies and practices that will enable each entity to not just have food security, but also ensure that the food produced is environmentally sustainable, and socially just.

Off types: Crops growing in the seed garden of similar species but with differing characteristics compared to the main variety planted.

Quality Declared Seed (QDS): This is a new class of seed that registered trained small scale farmers or a group of small-scale farmers produce for their own use or for sale to the neighbouring farmers within the community where the QDS is produced; clearly laid down quality control guidelines (FAO, 2006).

Roguing: The practice of removing off-type plants or diseased and pest infested plants from a seed garden.

Seed security: This is when the household has sufficient access to adequate quantities of good quality seed and planting materials of preferred crop varieties at all times; both good and bad cropping seasons

Seed sovereignty: The right of farmers to save, use, exchange, and sell their own seeds (Louis, 2013).

Smallholder farmer: Those farmers owning small-based plots of land on which they grow subsistence crops and one or two cash crops relying almost exclusively on family labour.

FOREWORD

Access to healthy and preferred seed for different crops is of fundamental importance for millions of households in the developing world. If good quality seed is scarce, then rural farming families struggle to make a sustainable livelihood, and family members are forced into coping strategies in order to meet food and income needs. Such strategies may deplete assets, further reducing the ability of the family to meet its future needs. Achieving and maintaining seed security is therefore an important agricultural development goal.

Seed security exists when men and women within the household have sufficient access to good quality and affordable seed and other planting materials of preferred crop varieties at all times in both good and bad cropping seasons. Seed related interventions are commonly based on the assumption that food security problems directly imply seed security problems. However, this may or may not be the case. Furthermore, when problems do occur these are not necessarily related to the physical availability (supply) of seed but cost and quality.

One of the most common problems for rural farming households is lack of resources to obtain seed. This can occur even when seed is available on the market. In such cases a more appropriate response to seed insecurity might be a scheme which increases household saving power for seed while increasing the supply.

In order to decide on the most appropriate short and long term seed related interventions, it is necessary to understand seed security by undertaking an assessment prior to intervening.

Understanding of seed security and seed security assessment is still generally restricted to a very small group of specialists. This is due to a number of reasons including: lack of technical capacity to undertake assessments; poorly articulated assessment recommendations and low level of awareness of assessment findings by decision makers. This is a serious situation, as undertaking seed related interventions without a proper understanding of seed security can do more harm than good.

This Community Managed Seed Security Model Facilitator's Guide has been edeveloped by PELUM Uganda to provide practical guidance on the theory, technical knowledge, procedures and good practices necessary to implement a comprehensive intervention to enable smallholder farmers to access good quality and affordable seeds and planting materials. It has been based on rich experiences from piloting the CMSS model with PELUM members (EADEN and VAD) in Iganga and Wakiso districts respectively..

The guide provides an important resource for facilitators and those seeking practical information on CMSS. It is also a contribution to the efforts t strengthen the informal seed sector in Uganda. This is the first edition and we hope that it will be improved after a period of usage and feedback.

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ACKNOWLEDGEMENTS

The development of this publication has involved many people who have devoted their time and efforts in providing and compiling relevant information.

PELUM Uganda would like to acknowledge the contribution of its Sustainable Farming Systems thematic committee members that participated in both the development of the Community Management Seed Security (CMSS) model as well as this Facilitator's guide. Committee members include; Rev. Canon Nason Baluku (New Eden Christian Foundation), Eustace Ssajjabi and Guloba Robert (Agency for Integrated Rural Development), Aliddeki Dativah (St. Jude family projects), Richard Kakooza (Voluntary Action for Development), Tibasiima Kahigwa Thaddeo (Sustainable Agriculture Trainers Network) and Muhwezi B. Godfrey (Eastern Archdiocesan Development Network).

In addition, PELUM Uganda Country secretariat staff including; Doreen Nanyonga and Joshua Aijuka are highly appreciated and recognised for their invaluable support towards editing and reviewing this publication.

PELUM Uganda would also like to acknowledge Dr. Frank Kagoda (Plant Breeding, Genetics, Nematology -NARO) for his invaluable support in editing the content of this guide.

Thanks to the development partners such as Swedish Society for Nature Conservation for their financial support towards the development of this guide.

1.0 INTRODUCTION

1.1 About the Community Managed Seed Security (CMSS) model

The CMSS model is a participatory farmer-led approach for systematically planning and executing interventions towards promoting farmers' seed security and seed sovereignty. The model consolidates the existing good seed security practices scattered across the PELUM Uganda network into a comprehensive approach for promoting community led seed security among smallholder farmers. It is hoped that after applying the CMSS model, farmers will be able to have a practical and harmonized approach to community-led seed security, have technical capacity to identify, multiply, improve and distribute or share good quality seed and get alternative source of income through sale of surplus seed.

This guide is arranged in eight Modules and each Module represents a particular phase of the CMSS model. The Modules include;

i. Introduction and brainstorming
ii. Planning and Management
iii. Training,
iv. Quality control,
v. Procurement,
vi. Seed multiplication,
vii. Seed distribution and marketing
viii. Evaluation and scale out.

The Modules have been made more practical by dividing them into short 2-5 sessions to aid application.

1.2 Why has this guide been developed?

This guide has been developed to aid the implementation of the CMSS model by the different partners interested in promoting smallholder farmers' seed security and seed sovereignty. It provides a practical starting point for each phase of the model and can be used to evaluate how well and far the model has been applied. This means that all partners can apply the CMSS model in a uniform manner and quite similar results expected.

1.3 How to use the guide

This guide has been developed in a simple language for development practitioners and farmer leaders to use. However, you will find that when it comes to specific technical details, most of them have been left out in order to avoid giving incomplete details given the vast nature of crops that may be taken on for seed production and management. This guide will be able to advise you where and when the help of a technical person in a particular field will be required.

1.4 Who should use the guide/target audience?

PELUM hopes that this guide will be easy for use by NGOs, development partners, CBOs as well as other organized farmers that find it necessary to intervene in seed security management.

1.5 Intended outcomes of the guide

It is hoped that this guide will change the practice of development partners on how they approach seed security management to make it farmer owned and controlled.

It is also hoped that more unified and systematic approaches will be found in many areas regarding seed security management as a result of using this guide.

There will be increased capacity of participating farmers to produce, conserve, distribute and sell seed within their communities.

A well managed banana multiplication garden for clean suckers

2.0 BACKGROUND AND RATIONALE

2.1. What is a seed system?

A seed system refers to the various ways in which farmers obtain seed. Seed sources can be grouped into "informal" and "formal" sector sources. In terms of proportion of seeds used by small farmers, the informal sector is by far the most important, accounting for around 80 – 90% of the total stock of seed in the developing world (FAO, 2015). Seed is any part of a plant which when planted is capable of growing into a new and normal plant with desired genetic characteristics.

The formal seed sector provides farmers with improved/modern varieties which are as a result of a series of activities, starting with plant breeding and ending with commercial seed on the market through seed companies, input dealers, government channels and international aid agencies.

The informal seed sector consists of all the other ways in which farmers obtain seed namely: from their own harvest; from friends, relatives and neighbours either through barter, gift, sale or through local informal markets.

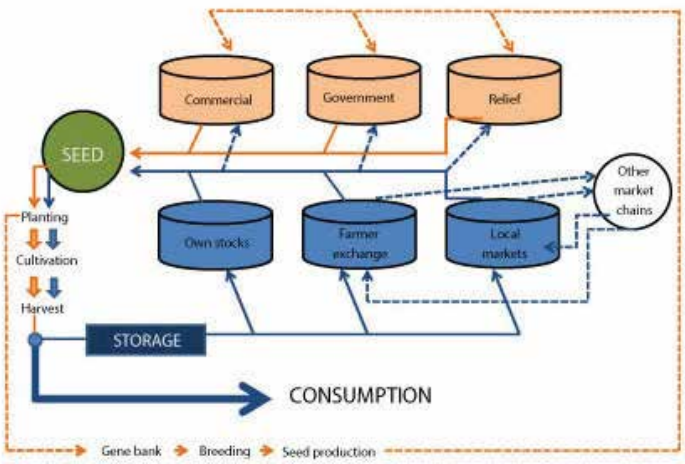
The informal and formal sources are part of one overall system, the various parts of which interact with each other to determine the relative importance of different seed channels to a particular farmer. For any given farmer, seed sources may vary according to crop type and it is not unusual for farmers to meet seed requirements for one crop from a range of sources. In situations of stress, it is often important for farmers to have the opportunity to switch between sources, so that if one source dries up another source can be tapped to compensate.

Figure 1.1 below represents a typical seed system for a hypothetical smallholder farmer in Africa, Asia or Latin America. Here the interactions between different parts of the overall system and within the different formal and informal sub-systems are clear.

For certain crops (and at certain times) only one or two of these channels might be in operation for a particular farmer. For example, for Vegetatively Propagated Crops (VPCs) such as cassava, sweet potato and yam, local markets are generally not used as a source, whereas for field crops such as beans and maize, local markets are often very important sources.

Building on FAO (2008)'s definition, household seed security can be said to exist "when the household has sufficient access to adequate

Figure 1.1: Typical seed system for a hypothetical smallholder farmer in Africa, Asia or Latin America



Source: Adapted from Sparling (2008)

quantities of good quality seed and planting materials of preferred crop varieties at all times following both good and bad cropping seasons". This definition can be extended to the intra-household level by substituting "household" with "men and women" as follows:
Seed security can be understood as consisting of four distinct elements.

1. Seed Availability: seed supply.
2. Seed Access: means to obtain seed through cash, loan, barter, or gift.
3. Varietal Suitability: extent to which crop varieties are preferred and adapted to farmer conditions.
4. Seed Quality: physical, physiological attributes and seed health.

Seed insecurity exists when any of the four aspects mentioned above is not present. Knowing which particular aspect(s) of seed insecurity is / are present is critical for designing appropriate interventions for promoting seed security.

Overtime, the farmers' self-reliance to provide own seed and other planting materials has continually being undermined by both natural conditions (such as climate change, floods) and manmade conditions (such as war, fake or poor quality seed on the market and potential threat of GMOs). Smallholder farmers have been most affected by seed insecurity yet they produce more than 85% of total food production for consumption and marketing in Uganda. This has been one of the major factors leading to food insecurity in the country and the East African region at large. Sustained increase in agricultural productivity is largely dependent on access to good quality and constant supply/distribution mechanisms of seed.
PELUM Uganda acknowledges the seed security challenges and since 2010 has been working towards addressing seed insecurity among smallholder farmers mainly through member capacity building.

2.2. Major objective of the CMSS Model

The major objective of the Community Managed Seed Security model is to improve agricultural productivity and seed sovereignty of smallholder farmers through increased access to affordable, good quality seeds of their choice at all times.

2.3. Specific Objectives

1. To provide a practical, harmonized and systematic approach for promoting community-led seed security for PELUM member organisations and other likeminded development practitioners.
2. To build the technical capacity of smallholder farmers to identify, multiply, save and distribute good quality seeds for improved food security.
3. To generate experiences for strengthening the informal seed sector that can provide good quality seed of required characteristics for the smallholder farmers in Uganda.
4. To provide an alternative source of income for the smallholder farmers through sale of surplus good quality declared seed to other farmers.

2.4. Structure of the CMSS Model

The CMSS model is structured in eight (8) major phases; introduction and brainstorming, planning and management, training, procurement, multiplication, quality control, seed distribution and evaluation and scale out phases. Within this facilitator's guide, each phase has been categorized into a module with different sessions.

MODULE ONE: INTRODUCTION AND BRAINSTORMING

Community brainstorming sessions are essential to establishing seed security needs.

3.1 Overview

This is the initial stage of the CMSS model. Within this phase, the facilitator establishes the community understanding of seed security, seed related challenges faced by smallholder farmers, existing seed security interventions and the gaps therein to justify the need for the CMSS model. It is also at this stage that smallholder farmers are sensitized about the CMSS model and selection of crop enterprises of their interest for seed security intervention. Smallholder farmers also get to agree on the objectives for implementing the CMSS model, whether be it for group level seed security or an income generating activity by specializing in seed production on a commercial basis or both. The local leaders and all relevant stakeholders are brought on board to understand the processes that farmers are about to undertake concerning CMSS.

This Module is categorised into four sessions which include;

1. Preparation
2. Situation Analysis
3. Target group selection
4. Inception and sensitization
5. Selection of Enterprises.

By the end of this Module the targeted beneficiaries should appreciate the need for seed security interventions and have a better understanding of the CMSS model.

Session 1: Preparation

Duration	**1 day**
Session overview	This session concerns the preparation of the implementing partner organisation. It specifically focuses at the institutional orientation to take on promotion of community managed seed security and the staff to implement the model activities among smallholder farmers and other partners.
Session Objective(s)	• To ensure that persons in the partner organisation responsible for implementing the model are well grounded on the model. • To ensure availability of resources required for successful implementation of the model.
Preparation	• All staff within the organisation are informed in advance to ensure that they participate in this session.
Materials	• Concept note of the CMSS model • Facilitators guide • Flipcharts • Markers
Session Type	• Presentations, plenary discussions and group work

Key learning points

a) Level of success of the model is largely dependent on the initial preparations made by the implementing or partner organisation.
b) Preparations should include both the technical and management team in the organisation for key decision making.

Facilitator's notes

The preparations are intended to be for the implementing or partner organisation more specifically the team that will be responsible for implementing the model among smallholder farmers and representatives from the management team where possible. Before beginning the implementation of the Community Managed Seed Security model, the facilitator must have a better understanding of the model.

a) Staff sensitisation on CMSS model

This is the initial activity of the model. It involves one of the staff or resource persons who have had a relatively good understanding of the model taking fellow staff through the various stages within the model. The concept note and facilitators guide for the CMSS model can be used as a reference material while facilitating this activity.
The facilitator should make the activity as interactive as possible to allow the staff increase their understanding of the model and relate it to their work. Plenary sessions should be included in the programme.

b) Action planning for implementation of the model

This activity could be implemented as a continuation of the first activity (a) above. It involves organisation staff especially those that will be directly implementing the model to develop action plans for implementing the model among smallholder farmers. Action plans should be in line with the stages of the model and reflecting the modules and sessions in this guide. The required budget can also be developed at this stage along with the source of funding.

Session 2: Situation Analysis

Length	5 days
Session overview	This session aims at establishing the seed security related issues within the community that require interventions of the CMSS model. The facilitator also identifies the various actors, opportunities and threats that are likely to affect model implementation. Group dynamics are also assessed as it gives an insight into the success and sustainability of the model.
Session Objective(s)	• To establish the community need for the CMSS model intervention based on real community issues. • To identify factors that could contribute to the success and failure of the model implementation.
Preparation	The facilitator must be well versed with the checklist and must be objective when administering it
Materials	Checklist, stationery (flip charts, markers, buzz cards)
Session Type	Observation, Focus Group Discussions

Key learning points

a) A good situation analysis is a key determinant to the success of the CMSS model implementation at community level

Situation analysis should be done within the target population consisting of a number of groups from which the CMSS implementing groups may be selected. There are several parameters that need to be put in to consideration when conducting a situation analysis. The list below details some of them. However, more parameters could be added or removed from the list to suit the various contexts the organisation operates in.

Parameters to consider when designing a checklist to use during situation analysis

- Major crop enterprises in the community
- Sources of seed for the mentioned enterprises (accessibility, affordability and consistence of supply)
- Seed related challenges
- Indigenous/new seed management practices in place
- Other stakeholders working on seed related activities
- Skills/knowledge on seed production
- Farmer group dynamics (functioning committees)
- Land availability, land tenure systems and land tenure characteristics
- Willingness of smallholder farmers to contribute towards implementation of the CMSS model
- Performance of the farmer group in the previous interventions

Session 3: Target group(s) Selection

Length	1 day
Session overview	This session focuses on selecting the right target group to implement the Community Managed Seed Security Model.
Session Objective(s)	To objectively select the most appropriate target groups for promoting the CMSS model for attainment of the desired results
Preparation	As a facilitator you need information on different potential farmer groups to select from. This could be from the existing organizational database.
Materials	Assessment form, Situation analysis report, score sheet and selection criteria
Session Type	Meetings, presentations and discussions

Key learning points

a) It is good to develop an assessment form for screening the farmer groups so as to assess those most in need for the model intervention and able to successfully implement the model.

b) Level of outreach is dependent on the resources the organisation is able to commit to the model implementation.

c) It is better to work with farmer groups within the same locality than those scattered. Farmer groups in the same locality provide a higher multiplier effect and cost effectiveness.

Facilitator's notes

It is important to refer to the previously conducted situation analysis to guide you on the selection of farmer groups to work with. The selection process for the target farmer group ought to be as transparent as possible such that it is justifiable to all stakeholders. A selection criterion is therefore important to guide the process. Opportunities for scale up also need to be communicated to other farmer groups that have not been selected to ensure that they are not demoralised.

The following should be considered during the selection process

a) Group and leadership dynamics: Farmer groups that are well organised and with good leadership structures are likely to be more successful and ought to be prioritised. If farmer groups with weak group dynamics are selected, a plan to build their capacity should be incorporated in the CMSS work plan.

b) Seed security challenges identified: Selected farmer groups must have a genuine seed security related challenge and need in order to change the status quo. It is this that will drive their commitment and ultimately success of the initiative.

c) Willingness to mobilise own generated resources: The selected farmer groups must show commitment to the initiative by committing to mobilize resources necessary for the success of the initiative. The resources may be in cash or in kind such as land for seed multiplication gardens.

d) Gender consideration: The selected farmer group must have a good representation of both men and women and this should be reflected both in terms of group composition, leadership and gender inclusiveness in decisions made. In case this is lacking in the selected group, the facilitator must ensure equity in decision making to ensure that both men and women benefit.

e) Related engagements: The facilitator must be keen to establish if the farmer groups selected are already beneficiaries of a similar engagement by other stakeholders. This will prevent duplication, competition; enhance complimentarity of interventions and attribution of results from the interventions. For example, government programmes such as National Agricultural Advisory Services (NAADS) and Operation Wealth Creation (OWC) that give seed inputs should be earmarked and possible effects/ contribution to CMSS intervention established.

f) Available organisational resources: Resource envelope is a key determinant to many aspects related to farmer group selection both in terms of quantity and group characteristics. It is therefore important to establish the available resources allocated to the CMSS model implementation and realistically plan for the number and type of farmer groups to be targeted.

Selection process

Having come up with a clear selection guideline, the facilitator may consider the following simple approaches to undertake the selection process;

a) Consider farmer groups that expressed interest and subject them to selection criteria in case they are more than the required number. In case there was not a prior call for expression of interest, all farmer groups could be subjected to a selection criterion and consider those that meet the criterion.

b) Compile outcomes of the selection process and organise a stakeholders' meeting to share the results and agree on the way forward. This is optional depending on resource availability and organisational culture.

d) Communicate the results and decision reached with the selected farmer groups and other concerned stakeholders and agree on the way forward.

Table 1.1 below shows a simple tool that can be used to compile summary results from the selection criteria.

Table 1.1 showing a simple Score sheet for group selection Tool

Item	Score 1-5 (1 for least and 5 for highest)					
	Group					
	Group A	Group B	Group C	Group D	Group E	Group F
e.g Seed security Challenges	5	0	4	3	1	4
Leadership structures	4	3	2	4	3	3
Can contribute own resources	3	4	1	2	4	2
Life time of a farmer group						
Gender representation						
Evidence of existing agric. Enterprises in the group						
Existence of some seed security interventions						
Total	**12**	**7**	**7**	**9**	**8**	**9**

From the above score sample, group A qualifies as the target group for the CMSS model

Session 4: Inception and sensitization

Length	1 day
Session Overview	This session focuses on introducing the model to the selected farmer groups and other stakeholders. In this session, participants get a better understanding of the CMSS model, its intended objectives and implementation.
Session Objective(s)	To create a good understanding of the CMSS model among stakeholders as a basis for their engagement in the model implementation.
Preparation	The facilitator needs to have a good understanding of the CMSS model. The model concept note and the guide are key documents for this process.
Materials	Flip charts, markers, CMSS concept note and facilitators guide
Session Type	Presentation and discussions

Key learning points

a) Community sensitisation is key for the success of the CMSS model.

b) There is need to level all stakeholders' expectations and understand how they will be engaged in the implementation of the CMSS model.

c) Feedback from this exercise should be taken seriously for the success of the model.

Facilitator's notes

In this session, the facilitator introduces the model to the participating farmer groups and stakeholder. The facilitator can begin by getting the group's perception of seed security in their community to set the participants mood of thinking about the concept of seed. It is also at this stage that smallholder farmers are sensitized about the CMSS model in detail. Farmers and stakeholders are introduced to all the stages of the model and the key terminologies related to seed and seed security.
It should be noted that this is not a capacity building session but more of awareness creation on general issues and gathering stakeholder understanding on seed security, seed sovereignty and the CMSS model. By the end of the session, participants should appreciate the need for the seed security intervention and how the model works. Below are some of the guiding questions for the brainstorming session.

- What is seed?
- What is your understanding of seed security?
- What is the major cause of seed security related challenges in your area?
- Whom do you think should engage in seed production?
- What are your views on farmers' engagement in seed production?
- What would be the benefits of farmers engaging in seed production?
- What are some of the existing seed security practices in your farmer groups?

The facilitator together with the participants can subject the various seed production practices to PEEST analysis (Political, Economic, Ecological, Social and Technological) to establish their responsiveness and effectiveness. They can also do a SWOT analysis (Strength, Weaknesses, Opportunities and Threats) to assess seed security issues in their groups. See Annex I and II for the SWOT and PEEST analysis templates.

After participants have aired out their views, the facilitator can then introduce the CMSS model. This should be done with the participants' views in mind. Below are the key areas for discussion.

- ⧖ What is the CMSS Model? (Introduction and principles)
- ⧖ Why the CMSS model? (Background and objectives)
- ⧖ What is unique/ new about the CMSS model?
- ⧖ Phases/ stages of the CMSS model

Note: It is very important for the smallholder farmers and other stakeholders to understand this section. The facilitator should take time to explain the CMSS model and make the session as engaging as possible. It is very important for the facilitator to get acquainted with the CMSS model before facilitating this session. Please refer to the CMSS model concept note for more details. Each stage of the model is also explained in the respective sections of this guide.
Apart from the smallholder farmers, other stakeholders that can participate include district and sub-county political and technical leaders, cultural leaders, opinion leaders, researchers from national research institutes among others. Their mobilisation and participation must be confirmed early in advance of the activity.

Session 5: Selection of Enterprises

Length	1 day
Session Overview	In this session, the selected farmer groups agree on the crops for seed security intervention based on the needs of the community as identified in the situation analysis and brainstorming sessions. Enterprises selected must cater for household food security, income, conservation of genetic diversity and must be gender responsive.
Session Objective(s)	To facilitate a farmer-led selection process for appropriate and gender responsive enterprises for seed security interventions
Preparation	• The facilitator must understand the key issues that emerged from the situation analysis and brainstorming sessions. • The facilitator must identify and manage the power relations such as gender dynamics in the farmer groups to ensure that no interest group is marginalized in the selection process.
Materials	• Facilitators guide • CMSS Concept note • Situation analysis session report/ notes • Brainstorming session report/ notes • Flipcharts • Markers
Session Type	• Meeting • Focused group discussion and presentations

Key learning points

a) The selection process must be managed well to ensure that all interest groups and individual needs were given a fair consideration.

b) The selection process is empowering to the farmers as it builds their self confidence to make decisions which are respected by the more powerful stakeholders.

c) Engagement of other stakeholders such as researchers for technical advice must be properly managed to ensure that they respect people's interests and choice.

Facilitator's notes

The key determinant for selecting the right enterprises for seed security intervention within the CMSS model is the process used. As a facilitator you should ensure that farmers are empowered enough to select the right enterprises but desist from imposing your choice on them.

This session could be in form of a meeting where the objective is introduced and people are guided on which approach to take and issues to consider while making their choice. Researchers and seed specialists could be involved at this stage to offer technical guidance on the enterprises selected. However, the final decision of enterprise selection should remain with the farmers.

It should be noted that farmers' interests should stretch far beyond yield potential. Other issues such as resilience, taste, cultural attachments, market potential and input requirements should also considered by the smallholder farmers. Such broader thinking should therefore be put to consideration when guiding farmers to select the right enterprises.

After introducing the sessions and giving guidelines on the selection process, farmers should be grouped by gender to ensure that both men and women are free to express their choices. Each group is tasked to brainstorm and select 3 enterprises of their choice; at least one for each major category (food, income and conservation). It should however be noted that one enterprise could represent more than one category. However, this needs to be clearly explained.

After the brainstorming session, the facilitator should converge the different groups and have each group make a presentation of their choice of enterprises. In an event that the selected enterprises differ for each of the groups, the facilitator must guide them to reach a consensus on the final enterprises selected.

The facilitator must ensure that the final choice is representative enough for both interest groups and this should be made clear right from the beginning. The facilitator must ensure that there is free expression and respect for people's opinions and interests regardless of gender, age and any other socio-economic characteristic.

This is the last session of Module One. The facilitator should briefly introduce Module Two to the smallholder farmers and request them to reflect on what activities need to be implemented by the farmer groups at each stage of the model as part of their action plan.

MODULE TWO: PLANNING AND MANAGEMENT

Community managed seed banks were set up during the CMSS model pilots in Wakiso and Iganga districts implemented by VAD and EADEN respectively

4.1 Overview

This module forms the second phase of CMSS model. After understanding the CMSS model and analysing seed security challenges under Module One, community members are facilitated to develop their own plan of action for the implementation of the CMSS model in their context.

Another very important element under this phase is the establishment of a farmer group level seed security committee with clear terms of reference. The seed security committee is responsible for spearheading the implementation and monitoring of the CMSS model.

The group is facilitated to draft a budget for their plan of action and the feasibility of the seed security interventions. The cost of the seed security intervention is translated to the cost of seeds from the scheme which is passed onto the farmers through purchase of seeds. This is a key determinant for the sustainability of CMSS model whereby the cost of producing seed should be much lesser to ensure that seed produced is availed to farmers at much lower costs than seed of the same quality on the market.

This module is comprised of 4 sessions, namely;

1. Planning
2. Management
3. Cost Benefit Analysis (CBA).
4. Development of seed distribution guidelines

Below is a detailed description for each of the sessions.

Session 1: Planning

Length	1 day
Session Overview	In this session, farmer group members are facilitated to develop their own plan of action for the implementation of the CMSS model in their context. The facilitating agency and other relevant stakeholders should be involved in the process and should make clear their resource contribution to the implementation of the action plan(s).
Session Objective(s)	• To facilitate the process for developing a gender responsive farmer group action plan for implementing CMSS model activities. • To mobilize resources necessary for the implementation of the CMSS action plan within the farmer group members and by other stakeholders.
Preparation	• Groups need to be informed in advance to reflect on the possible activities within each phase of the model • Relevant stakeholders to be involved need to be identified and informed in advance
Materials	• Facilitators guide • Flipcharts • Markers
Session Type	• Presentations, plenary discussions and group work

Key learning points

a) Proper planning is a key ingredient for successful implementation of the CMSS model. A good plan should be realistic in relation to available resources and ambitious enough to get the desired results.

b) All members of the farmer group have to be involved in the planning phase so as to build a sense of ownership of the project.

c) Own contribution by the farmer groups should be emphasised in addition to other external resources from NGOS, local governments and other stakeholders.

d) Farmers need to be equipped with resource mobilisation skills to enable them raise the extra resources needed to implement the CMSS action plan

Facilitator's notes

To introduce the session, participants need to be briefed on the importance of this session and the expected outputs. The facilitator must emphasise the need to have plans that are as realistic as possible basing on the available internal and external resources.

The action plan needs to be ambitious enough with the goal of improving the seed security status of the farmer group and individual households. Therefore, a plan that doesn't significantly address the household challenges cannot be regarded as a good plan. This implies that the facilitator needs to be keen enough to guide the farmers to develop a workable and yet ambitious plan.

Participatory farmer-led planning tools can be used to enable farmers actively engage in the CMSS model community action planning process. The GALS methodology Vision Road Journey is a recommended tool for this exercise.

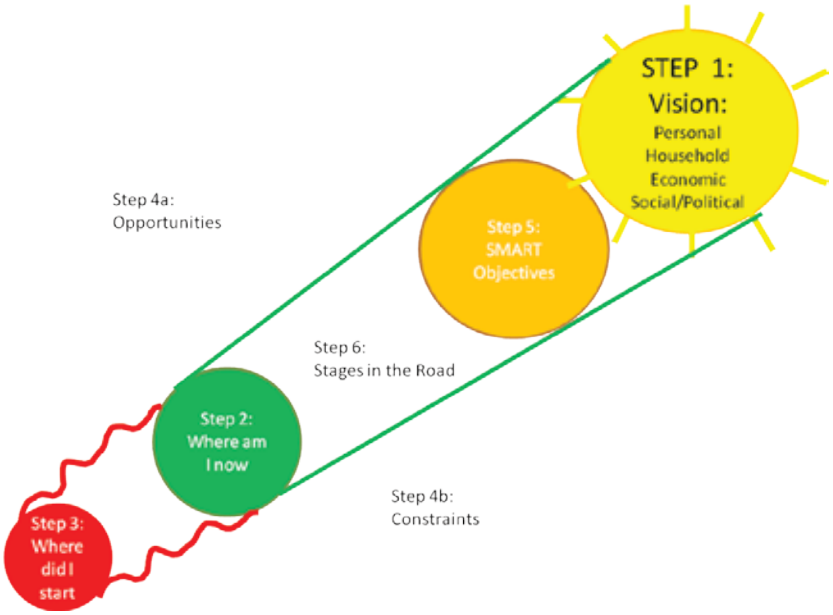
About the GALS methodology; Vision Road Journey

The vision journey is a reflection and planning tool that enables individuals and communities to dream for a better life and develop SMART plans of how to achieve their visions. The Vision Road Journey is the basic framework tool for the Gender Action Learning (GALS[1]) methodology. The GALS methodology and specifically the Vision Road Journey is easy to use especially by the illiterate and semi illiterate communities as it largely uses visual diagramming and symbols to express themselves as opposed to writing.

[1] GALS (Gender Action Learning System) is a community-led empowerment methodology that aims to give women and men more control over their lives and catalyse and support a sustainable movement for gender justice.

The Vision Road Journey has 6 major steps as illustrated in figure 2.1 below.

Figure 2.1: Steps for developing the vision road journey (extracted from the New GALS Manual: Rocky road to diamond dreams)



Source: New GALS Manual (2014): Rocky road to diamond dreams

Step 1: first circle – future
Draw a large circle at the top right hand corner of your page. This represents the future. It is a large circle at the top because it is like a sun and you are reaching for the sky. It is the vision which will inspire you to pick yourself up, and continue to move forward if you fall and stumble on the rocks along the road.

Step 2: second circle - present and drafting the road
Draw a second large circle at the bottom left hand corner of the flipchart. This represents the present situation.
Draw two straight lines to link both circles. This represents your road from the present (bottom) to the future (top). The road is straight and upwards, because this is how you hope you will reach up to your vision.
In the bottom circle draw how your current starting situation is for things in your vision e.g. what type of house do you have now, who owns it?

Step 3: opportunities and constraints
On either side outside the road you will draw: insert at least 10 opportunities at the top of the road – the things which will lift you up if you fall down. The more opportunities you can think of, the easier it will be to advance. At least 10 constraints go under the road because these are the things that can drag you down. It is important to foresee and avoid them if possible. The things which are most under your control are placed nearest to the road. The things which you cannot control go furthest from the road.

Step 4: Target and milestones
Every journey starts with small steps. Your vision is a long term dream. Now you need to plan how realistically, given the opportunities and challenges, you can start to move.
Draw a circle immediately next to the vision and fill in how far you think you can get towards the vision in one year.
Then put three or four circles at key points where you expect to have something to show as measurable milestones along the road. Leave space in between the circles - that is where you will put the actions.

Step 5: SMART milestones and action plan
Now you are ready to fill in your milestones - in each circle you put in how far you need to get each time. Focus particularly on the first.
Then between each milestone you put in the actions needed to move from one to the next - revising the milestones and target if necessary. You will then track your progress over time, and adjust your drawing as needed to get as far as you can towards your vision.

Key notes for the facilitator
People draw individually but it is good for them to sit in informal groups - either according to their vision or if there are significant inequalities between participants, putting together those who have most difficulty in one group and the most advanced in another. This is to enable the facilitator to easily give necessary support to each, while those who have initial difficulties can encourage each other rather than feeling dominated. Those who are more advanced can move ahead quickly with more complex analysis to add to the discussion later. Men and women may need to be separated if one is likely to dominate the other. Sharing between the different levels will be encouraged as homework. Stress that everyone draws for her/himself and that they can discuss and learn from each other, but not copy someone else's road which may not be achievable for them.

Go through the participant instructions above step-by-step interactively from the side, inviting people to give examples on the flipchart at the front as people draw in individual notebooks/diaries. Go slowly. And do not touch the pen/marker yourself. Make sure everyone is engaged all the time - either through taking their own analysis further or helping others. When people have finished, they should start to share in their groups until everyone has finished enough to start the plenary. Focus particularly on identifying as many opportunities as possible and seeing if challenges can be turned into opportunities. The aim is detailed and inspiring analysis not artist drawings.

Key points which may need to be continuously emphasizing are:

- The importance of identifying as many opportunities as possible - particularly ones over which they may have some control. It is that deep reflection and brainstorming which will really help people advance. It may be very useful to discuss with neighbors on this.
- Challenges are identified in order to foresee them and plan how to address them. Focus on those under one's control and see also if they can be turned into opportunities. Do not waste energy on all the possible disastrous acts of God, unless they can and need to be addressed.
- The need to separate out the milestone targets from the actions needed to attain them. That is an important point for future tracking and monitoring - it is the actions that people can control, not necessarily whether they fulfill the targets. They will need to continuously assess which actions are successful and which are not, and maybe revise their targets accordingly.

Each group should be facilitated to develop Vision Road Journeys for their CMSS model intervention. This will enable them understand what exactly they would like to achieve collectively and how they can achieve it. This also builds cohesion among group members.

Individual members can also be encouraged to use the knowledge acquired in the process to

develop their individual and household vision road journeys.

Information generated from the Vision Road Journey could be extracted and presented in the template below for easy interpretation by other stakeholders not in the group who may not understand the tool. This would also be helpful to the implementing organisation.

Action plan

Activity	Month of the year												Resources	Responsibilities
	J	F	M	A	M	J	J	A	S	O	N	D		
Field preparation		X					X						Hoes, labour	CMSS committee

During the action planning phase, the facilitator must be able to identify committee positions & other stakeholders not yet recognised.

Session 2: Management

Length	1 day
Session Overview	Management and sustainability of any seed security system requires good leadership. This session can be started with a question of reflection where participants will give their views about good leadership skills. After sharing on this, the facilitator goes on to elaborate more on the skills a good leader must have.
Learning Objective(s)	Equip the farmer group members with leadership skills
Preparation	• Groups need to be informed in advance to reflect on the current leadership gaps that exist with the community and/or farmer group • Relevant stakeholders for instance farmer group leaders should be involved and need to be identified and informed in advance
Materials	• Facilitators guide, flipcharts, markers
Session Type	• Presentations, plenary discussions and group work

Key learning points

a) The success of any project is dependent on how organised the farmer group is which lies on the leaders shoulders.

b) For the success and sustainability of the project, resources such as people and money have to be managed properly.

Facilitator's notes

What is leadership?

There are a number of definitions of leadership, which include;

- An activity of influencing people to co-operate towards the same goal which they find desirable.

- A relationship between an individual and a group, built around some common interest and behaviour as directed or determined by the leader.

- A process by which one person attempts to influence the behaviour of another (or a group) with the expressed purpose of achieving a goal (or goals).

According to Maxuel (1999) a leader is: A person who influences or attempts to influence the behaviour of an individual or a group of people to cooperate towards some goal(s) which they have found desirable.

There is a general belief that the effectiveness of a seed project in any group depends largely on how such a group is structured and managed. A farmer group is likely to function efficiently if the principles and practices of leadership i.e. motivation, decision-making, conflict management, delegation and team building are properly applied in its day-to-day functioning. There are some essentials and inherent facts or pre-requisite a person must possess before he can perform a leadership role in a group. Three of these are:

o Ability to influence others;
o The leader must be a member of the group, and
o A common goal must exist at the point of influence.

"If you can become the leader, you ought to be on the inside, you will be able to become the person you want on the outside. People will want to follow you. And when that happens, you'll be able to tackle anything in this world". Maxwell (1999)

See annex 3 for notes on qualities of a good leader.

Having discussed the attributes of a good leader above, the facilitator can now aid the group in coming up with the group leadership structure.

Defining leadership positions and leadership selection

Positions required for the seed multiplication process: The facilitator may have to know the existing/ relevant structures. Leadership positions are agreed upon and members elect to fill up missing positions (see examples in Table 2.2)

Table 2.2: Leadership positions in the group

#	Leadership position	Responsibilities
1	Chairperson	• Oversees the operations of the committee as entrusted by the members • Organises for meetings of the group
2	Assistant chairperson	Deputises the Chairperson when the latter is not available to conduct his/her duties above
3	Secretary	• In charge of documenting the meeting proceedings and ensuring that documents are secured. • Calls for meetings
4	Treasurer	In-charge of finances for the members

5	Publicity	Responsible for the publication and awareness creation of group activities for increased visibility of the members and their products/services
#	**Leadership position**	**Responsibilities**
6	Chairperson monitoring committee	In-charge for overseeing assessment of interventions conducted and to inform decision making of alternative options basing on key learnings from the monitoring
7	Chairperson procurement committee	Responsible for responsible and accountable procurement of assets and liabilities of the members
8	Chairperson seed security committee	In-charge of CMSS interventions in the group

Session 3: Cost Benefit Analysis

Length	1 day
Session Overview	This session is to help participants in calculating the returns on any enterprise selected. A refresher question to the participants can be posed, *"Why is seed bought from commercial dealers more expensive than what is produced at home?"*
Learning Objective(s)	To enable participants ascertain the feasibility of the project before going forward with it.
Preparation	Participants must be aware of all costs incurred during the seed multiplication process and know the prevailing market prices of seed in both the informal and formal seed among producers and sellers
Materials	Calculator, flip charts, markers, facilitators guide
Session Type	Presentations, plenary discussions and group work

Key learning points

a) The Cost Benefit Analysis will guide the farmer group on how much they have to input into the project compared to what they expect from it.

Facilitator's notes

At this point the facilitator brings back the action plan and develops a budget for it with the participants. All costs must be attached that are related to production of the seed. This will give the total cost of producing the seed (in Shs, say, X/=).

The total expected yield is estimated in Kilograms (say, Y kg).

Cost of producing unit seed (1kg) = total cost of production (Xshs) / total expected yield (Ykgs) i.e. X shs/Ykgs

Then a comparison is done for the cost of producing a unit of seed and prevailing commercial market price. If the cost calculated is less than the market price, then it implies that they will get seed at a less cost. When the cost of production is higher than that on the market, at least the farmers are assured of availability and quality of the seed.

The facilitator will have to ask participants how they can reduce on the cost of production. Cost minimisation strategies could include economies of scale (bulk purchase and bulk selling), forward and backward integration (producing some of resources needed to produce or taking over seed distribution/customers), reducing post-harvest losses, increasing productivity per unit etc.

Session 4: Development of seed distribution guidelines

Length	1 day
Session Overview	It is important that this is handled during the planning phase. It involves putting in place the guidelines beforehand to guide how seed will be handled or distributed after multiplication to prevent future complications. This is very important especially for seed grown in a farmer group garden.
Learning Objective(s)	• To put in place group guidelines on how to share or distribute seed after harvest.
Preparation	• Effective mobilization for the participation of all the members
Materials	Marker, masking tape, newsprint, printing papers
Session Type	Brainstorming

Key learning points

a) The success of the seed security system will be determined by how well seed distribution will be organised and executed.

b) Involvement of all participants of the farmer group in this exercise will result in acceptable guidelines and avoid internal conflicts in case of breach.

Facilitator's notes

The guidelines must match with the purpose for which seed will be produced, either for marketing, sharing among members or both. This has to be done during this planning phase and incorporated in their records (constitution or bye-laws). This will help to avoid confusion in the group especially for the members with selfish interests or non-active participants. The following should be catered for in the guidelines;

- How much seed to produce in a given season
- Will the seed be sold? If yes, to whom and at what price. The Cost Benefit Analysis in Session 3 above can be used here. Adding a mark-up (say 30%) to the unit cost of production helps to obtain the selling price.
- Will it be distributed to members? If yes, how will the seed be distributed? How much seed will be distributed?
- What mechanism will be used to select members who will receive seed?
- What is the sustainability mechanism?
- How will non-members in the community benefit from the system?

The facilitator should guide on sustainability implication of whichever modality that is agreed upon by the farmer group.

Some of the criteria to use in selecting beneficiaries of seed or other materials coming from the common garden could include the following;

- Number of times a member participates in farmer group activities especially on seed production. It is therefore important for the farmer group to keep a register and roll call every time a group activity is done such that the number of times a member was active forms the basis for the proportion seed or other benefits shared.

- Readiness to use the seed; this should be verified by the seed security committee which should visit all the members to assess size and readiness of their gardens.

- No sale of seed should be done before members get enough seed and part of it is kept at the seed bank to guard against future uncertainties.

MODULE THREE: TRAINING

Members of the Community Managed Seed Security group attend a training facilitated by a research officer from National Agricultural Research Organisation (NARO)

5.1 Overview

This module takes care of phase three of the CMSS model. It involves capacity building of the farmer group members and specifically the seed security committee in seed production and management practices. The trainings are conducted by either PELUM member organisation staff (if they have capacity) or by an external resource person from the formal seed sector. The trainings are both theoretical and practical to enable the farmers generate a deeper understanding of the issues covered. The trainings are tailored to the learning needs expressed by the farmers and the selected crop enterprises during the reflection phase to enable them easily put to practice what was learnt.

Capacity building processes include; training workshops, exposure visits and follow up onsite trainings after the initial trainings to ensure that the trained farmers are appropriately putting to practice what was learned. Both the seed security committee members and member organisation staff responsible for seed security should be trained and equipped with training of trainers' skills so that they can pass on the knowledge to other farmers. Use of Farmer Field School (FFS) approach could also be employed to facilitate experiential learning among the groups. This phase can take about 5 days. However, follow up trainings are recommended at each stage of seed multiplication.

During this Module the facilitator should base on the knowledge that famers indicated in the previous Modules. Different crops have different agronomic practices thus the training provided will entirely depend on the enterprises selected by the farmers.

This module has five sessions and these include the following;

1. Understanding seed and seed security
2. Seed identification and selection
3. Field management of a seed crop
4. Soil fertility management in seed production
5. Seed pre and post-harvest management

Session 1: Understanding seed and seed security

Length	1 day
Session Overview	This session involves capacity building of farmer group members to enable them generate a deeper understanding of seed and issues under seed security
Learning Objective(s)	To help participants understand seed and seed security concepts.
Preparation	- Mobilization of participants - Adequate technical preparation.
Materials	• Facilitators' guide, flipcharts, markers
Session Type	• Presentations, plenary discussions and group work

Key learning points

a) It is important that participants appreciate the concepts around seed so that they are able to appreciate the rest on the Modules.

b) Remember this session builds on the introduction concept. So beware of consistency.

Facilitator's notes

Seed security: As defined earlier; Seed security exists when men and women within the household have sufficient access to quantities of available good quality seed and planting materials of preferred crop varieties at all times in both good and bad cropping seasons (FAO, 2006).
Seed security can be understood as consisting of four distinct elements.

1. Seed Availability: seed supply.
2. Seed Access: means to obtain seed through cash, loan, barter or gift.
3. Varietal Suitability: extent to which crop varieties are preferred and adapted to farmer conditions.
4. Seed Quality: physical, physiological attributes and seed health.

Seed availability: Seed availability, as defined by the Sustainable Agriculture thematic committee, refers to the physical quantity of quality seed available from all sources. Under this definition, adequate availability of seed exists when there is sufficient seed from own saved seed, social networks, in local markets and the formal seed sector to meet seed needs of local households. The available seed should be in proximity to the farmer and be available in time for planting.

Indicators for seed availability at household level would include:

a) Quantity of own saved seed stored at the household
b) Quantity of seed known to exist within social networks
c) Quantity of grain of preferred varieties and crops available in local markets at planting time which farmers could use as seed
d) Quantity of seed available with seed companies and local seed stockists at planting time
e) Quantity of seed available through seed aid organisations at planting time (should be applicable only when there is an identified seed access problem)
f) Proximity of seed sources in relation to the household – e.g. distance to local markets, local seed stockists
g) Time in which seed is available (before, at the start, mid or late season)

Seed access: Access to seed is defined as the ability and willingness to acquire seed through cash purchase, exchange, loan, barter or use of power in social networks. In relation to the latter, while seed may be available within a social network, it may not be accessed due to lack of power, status or influence of the household to acquire it.

Seed may also be obtained through barter – i.e. in exchange for another commodity or service such as labour or it may be given on loan, on the condition that an equal or greater quantity is returned at a later date or it may be acquired in exchange for cash, in local markets or in seed distributors (formal sector).

Indicators for seed access at household level include;

a) Amount of seed accessible by the household through social networks (social access);
b) Level of household income obtained through different sources;
c) Wealth of household as defined by fungible assets (e.g. livestock);

d) Purchasing power of households (disposable income relative to price of seed in local markets).

Varietal preferences / suitability: This aspect of seed security refers to the ability of farmers to have seed of crop varieties which have the characteristics that they prefer. There are a range of desirable characteristics which may differ from household to household, or between men and women within the household.

The most commonly cited desirable characteristics include: appearance, size, taste, aroma, cooking quality, storability, ability to produce fodder, high income potential, high production potential, disease and pest resistance in the field, and quality for making certain derivatives such as beer.

Households require seed for crop varieties that they know, have a preference for and are confident to plant. In some cases farmers can identify the seed of the varieties they use. This is also why farmers need to trust the seed seller or giver since varieties cannot always be identified by looking at the seed.

Also farmers are sometimes hesitant to plant seed from an unknown origin since it is a big risk if the variety is wrong or the seed quality is poor. The situation is complicated by the fact that in some cases the varieties that farmers know may not be adapted to the current situation due to drought, pests or diseases and there is a need for farmers to be introduced to new varieties.

Understanding this in a field situation can be challenging and requires good knowledge of the context and the varieties being used.

Indicators for varietal suitability / preference would include:

a) Level of farmer satisfaction with the crop and varieties they are currently growing or desire to grow;
b) Specifically desired characteristics which are/ are not present in the varieties which they are currently growing;
c) Number and types of problems related to current varieties (maturity period, pest, and disease resistance, drought tolerance, yield)
d) Farmer access to true and useful information about varietal suitability;
e) Substitution or replacement rate of varieties.

Seed quality: Seed quality includes a number of seed attributes such as germination, physical purity, moisture content, seed health, and – for some crops – varietal purity. Though it is a quantitative parameter, the perception of the farmer depends on the crop and what they consider normal or acceptable.

Some of these seed attributes are apparent when you examine the seed and others are not. Seed quality attributes are an essential parameter of seed security because of their potentially positive or negative impact on the farmer's ability to successfully establish a crop in the field and to have a reasonable yield.

Indicators for seed quality would include:

a) Proportion of diseased seeds from different seed channels (on-farm, local market, social network);

b) Rate of germination of seeds from different seed channels (provided by farmers, local market, social network);

c) Mean percentage physical purity of seeds from different seed channels (provided by farmers; local market; social network);

d) Mean percentage varietal purity (when a pure variety has specific advantages) of seeds from different seed channels (provided by farmers, local market, social network).

Resilience: In seed security terms, a farmer is resilient if he/she can resist the impact of a major shock or stress so that pre-existent levels of seed security are either maintained or quickly returned. The degree of resilience is measured by the extent to which seed security is adversely affected by a particular shock or series of shocks. When faced with the same shock (such as drought) two farmers in the same village may exhibit different degrees of resilience to the shock in terms of their seed security. Thus one farmer may become seed insecure as a result of the drought (not resilient), while the other remains seed secure (resilient). Some households may be susceptible to very small shocks, in which case we can say that they are highly prone to seed insecurity (very low resilience).

Resilience is manifested in the degree of seed security in terms of seed availability, seed access, seed quality and varietal suitability after a shock. Thus it can only be directly measured by changes in indicators for these aspects (see earlier sections).

These changes can then be compared across different households to ascertain degrees of resilience to that shock. Further investigation will reveal reasons for different degrees of resilience. It is likely that the reasons will include:

- Livelihood diversity (risk spreading)
- Crop and varietal diversity (risk spreading)
- Different abilities to switch between seed source channels – linked to:- Amounts of stored seed, degree of social access, proximity to local seed markets (local grain dealers and agro-input dealers)
- Different levels of asset ownership and ability to liquidate assets
- Different access to information about climate, seed sources and prices
- Different policy environments (e.g. whether the informal sector is recognized as a bona fide source of seed or not in the existing policy frameworks)

Seed defined: According to Agriinfo.net (2005), Seed is any part of a plant which when planted is capable of growing into a new independent and normal plant with desired genetic characteristics. It may be in form of grain, a tuber, part of a stem, or a sucker.

Terminologies used in seed multiplication

1. Hybrid – This is seed produced by cross pollination of pure bred lines of unrelated genotypes but of the same species..

2. Open pollinated varieties (OPVs) - These are generally referred to as seeds that will breed true-to-type i.e. they produce plants roughly identical to their parents. They can be through self-pollination or pollination by another representative of the same variety. The pollination can be done by insects, birds or wind.

3. Genetically modified organisms (GMOs) – These can be defined as organisms (i.e. plants,

animals or microorganisms) in which the genetic material (DNA) has been altered in a way that does not occur naturally by mating and/or natural recombination.

4. Indigenous seed – this is seed produced from a plant by natural breeding without human aided processes. This is seed that gives forth to indigenous crops brought from history by continuous selection and adaptation. This may also be referred to as Landrace.

Properties of a good quality seed

1. Seed must be true to its type i.e. genetically pure, free from contamination and should belong to the proper variety or strain of the crop. Their duration should be according to agro climate and cropping system of the locality.

2. Seed should be pure, viable, vigorous and have high yielding potential. This implies that there should be no mix up of different varieties of the same crop in the same seed lot.

3. Seed should be free from seed-borne diseases and pests. This ensures that the pests and diseases are not transmitted to the newly established plant.

4. Seed should be clean i.e. free from weed seeds or any inert materials. These foreign materials contaminate seed and may aid transmission of pests, diseases and weeds to new crop fields.

5. Seed should be in whole and not broken or damaged. This ensures that pest infestation during storage is minimized, the embryo is well protected and rotting is minimized.

6. Seed should be as fresh as possible or of the proper age. Seed for most crops should not go beyond three seasons before being replanted. The seed must have matured well by the time it is removed from the parent plant.

7. Seed should contain optimum amount of moisture (8% -13.5%). This moisture content range maintains the seed viability and prevents deterioration during storage through pest infestation and rotting.

8. Seed should have high germination percentage (more than 80%). Seed that falls below 80% germination makes the planting more costly since more seed has to be planted to gain optimum field population.

9. Seed should germinate rapidly and uniformly when sown. Rapid germination prevents seed rotting in the soil when planted. Uniform germination encourages uniform growth and uniform competition of the plants in the field.

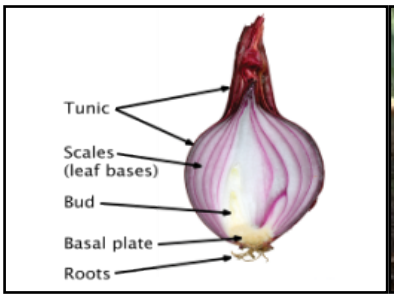
Types of planting materials

There are traditionally two types of planting materials depending on how they are formed. There are sexual and asexual (vegetative) planting materials.

Sexual planting materials are produced from flowering plants where the male parts (anthers) fertilise the female parts (stigma) of the flowers to produce a seed that can be planted and germinate into a new plant after maturity. Examples of sexual planting materials include grain and pulses.

Asexual or vegetative materials are those parts of a plant, other than the fertilised embryo that are planted to produce new plants. Examples include;

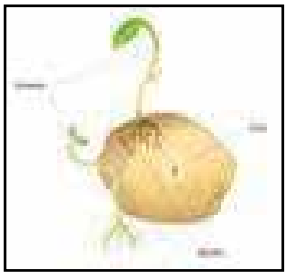
- Bulbs; e.g. onions



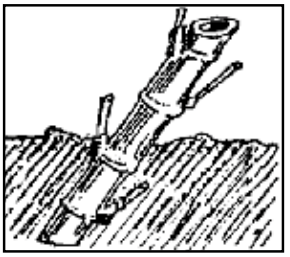
- Corms; e.g. banana's true stems, yams.

- Suckers; e.g. banana suckers.

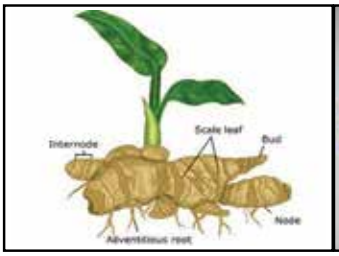
- Tubers; e.g. Potatoes



- Stems; e.g. cassava, sugar cane



- Rhizomes; e.g. Ginger and Tumeric



Each of the above planting materials has specific production and handling requirements that must be fulfilled for them to qualify as seed.

REFRESHER QUESTION: What are some of the existing practices within the community that may make a good seed to yield poor seeds?

Session 2: Seed identification and selection

Length	1 day
Session Overview	Not every part of a plant that can germinate or sprout into a new plant can be used as seed. The participants need to decide and identify the source of seed for the selected crop and be able to pick out the plant part to be used as seed for purposes of producing other seeds for future planting.
Learning Objective(s)	Participants to acquire knowledge and skills of selecting the right seed for planting.
Preparation	• Request participants to carry what they call seed to the training venue. • Collect samples of good quality planting materials that qualify as seed to use for illustration/comparison
Materials	Facilitators guide, flipcharts, markers and masking tapes, seed materials
Session Type	Presentations, plenary discussions and group work

Key learning points

a) Critically ascertaining the quality and history of foundation seed is the future of any seed intervention.

Facilitator's notes

Seed identification is dependent on the type of crop in question. Participants should be aware or seek to understand the specific characteristics of the variety they want to grow in order to ably distinguish it from the off-types. At this stage participants should possess the necessary knowledge about the quality of a good seed material as covered in Session one of this module. Sometimes the seed is identified from the mother plant itself, especially the vegetatively propagated crops. It is therefore important to understand and identify the characteristic features of such a plant from which to pick the seeds.

It is ideal for prospective seed producers to obtain foundation seed from a well-documented or authentic source in order to be sure of the crop seed purity. Examples of sources include National Agricultural Research Organisation (NARO), authorised seed producers and fellow farmers in the community where they can trace back the history of the seed.

Seed rate calculations: Participants should be facilitated to calculate the seed rate of different crops, but most especially their selected crop type. This will aid them during the procurement phase and avoid wastage or under estimation.

Session 3: Field management of a seed crop

Length	2 days
Session Overview	The success of seed production is determined by field management expertise employed to produce the crop. Participants should appreciate that crop management for seed production is followed more strictly than for other purposes. The participants should therefore have a proper grasp of the different agronomical practices in line with the seed type selected for production.
Learning Objective(s)	• To enhance farmers' knowledge of specific agronomic practices of the crop(s) selected for seed production.
Preparation	• Identify and inform a technical person able to train participants on the field agronomic practices of the selected type of crop. • Select a training venue where both theory and practical can be done according to the specific crop in question.
Materials	• Facilitator's guide, flipcharts, markers, masking tape, assorted garden tools and a technical handbook for the selected crop
Session Type	Presentations, plenary discussions and group work

Key learning points

a) It is better to use services of a trainer with expert knowledge, but more importantly, with current experience in seed production. If the implementing organisation has no resident skills among its staff then NARO technical staff or field staff of seed companies can be very resourceful on conducting this training.

b) Training must be tailored to the crop selected for production. Generalist approaches to agronomy should be avoided as these do not impart expert knowledge to the participants.

c) Each theoretical aspect must be followed by a practical activity to enhance participant's learning.

d) The trainer must prepare widely on the suggested topical areas with specific emphasis on selected crops.

Facilitator's notes

Ensure the trainer is knowledgeable. He/she should cover at least, but not limited to the following practices concerning field agronomy for seed crop production. The trainer should ask and answer the what, why, how and when of the agronomic practices of the crop selected.

- Land preparation practices from bush clearance to preparation of final tilth.
- Isolation practices either by distance, time or physical barriers.
- Proper land demarcation practices - whenever possible emphasise that the garden should have regular shapes.
- Planting operations - raw demarcation, spacing, planting depth.
- Weed control - cultural, mechanical or chemical weed control
- Field inspection - for diseases/pests and roguing.
- Soil and fertility management - this can be handled as a separate session (see next session).

- Pest and disease control - biological, cultural, chemical, organic or Integrated Pest Management (IPM).
- Recording of events - i.e. all activities done on the field, any inputs used, date, who did what and why

In all the above practices, emphasise building on local practices and only improve or add where necessary.

Session 4: Soil fertility management in seed production

Length	2 days
Session Overview	The quality of seed is highly dependent on the ability of soil to nurture a vigorous crop that is intended to produce seed for future crop production. It is therefore necessary to emphasize soil and soil fertility management in seed production.
Learning Objective(s)	• To build farmers' knowledge on the purpose of maintaining soil fertility in gardens. • To enhance farmers knowledge on the various practices of managing soil fertility. • To ensure that farmers are able to produce and apply different kinds of manure from locally available farm materials.
Preparation	• Mobilize participants in advance and advise them to carry along different materials they know that could be used to produce manure. • Stock some manufactured organic manure for illustration during training.
Materials	• Plant residues and animal wastes such as cow dung. • Samples of manufactured organic or compost manure • Farm tools for organic fertilizer preparation. These may include; a garden fork, panga, wheel barrow, shovel, pegs, plastic containers of 50-200 liter capacity.
Session Type	Brainstorming, presentation, practical demonstrations.

Key learning points

a) Emphasise to participants the use of organic manure for sustainable production

b) Emphasise why it is important to manage soil fertility for purposes of seed production

c) Emphasise soil testing and how participants can access soil testing services.

Start by exploring whether members face any soil fertility challenges and what soil and soil fertility management practices they use on their farms.

Facilitator's notes

As crops grow, they consume the soil nutrients in order to produce a good seed. The impact of low soil fertility can be evidenced in the poor vigour of the crop. Other farm operation practices such as mono-cropping, ploughing and planting along slopes can lead to reduction in soil fertility. It is therefore imperative to exhaust this session of soil and soil fertility management in seed production.

The discussion and practical sessions should cover the following topics;

- Composition and characteristics of fertile soils.
- Farming practices that lead to soil fertility reduction.
- Farming practices that lead to increased soil fertility.
- Manifestation of soil fertility reduction.
- Different types of fertilisers and manures that can increase soil fertility.
- Practical activities of production of organic manure, with emphasis on compost, farm yard, liquid manure and plant tea.
- Practical activities on application of different types of manure to different sizes of the garden, i.e. how to allocate a given/recommended quantity of manure to cover a given size of field.

Session 5: Seed pre and post-harvest management

Length	1 day
Session Overview	Seed is never seed (for future planting) until it has been harvested and processed in a manner that warrants it to be planted for the successive growing season. A well grown crop can be wasted at the time just before harvesting or after harvesting, hence the need to seriously emphasize post-harvest handling.
Learning Objective(s)	• To help farmers identify and prevent common causes of seed damage during and after harvesting • To enable farmers adopt the use of appropriate practices of seed processing, storage and preservation.
Preparation	It is better to organize this training at a time where there is a crop ready or harvesting and other post-harvest operations. Find out from among the members those who have such and conduct the training from there.
Materials	• Different harvesting equipment depending on the type of seed. These may include; knives, panga, hoes, carrying container. • Flip charts, masking tape, markers,
Session Type	Presentation, brainstorming, practical demonstration

Key learning points

a. Emphasize proper harvesting practices, the timing of harvesting of crop meant for seed production and reasons for the emphasis.

b. Practical sessions are more preferable than theoretical ones in this session

c. The trainer of this Module should preferably have experience and training in postharvest handling. Use of theoretical and practical experience will enhance learning

Facilitator's notes

It is important for the facilitator to possess skills and experience in post-harvest handling of seed crops. The following tips are important;

1) Maturity signs of the crop for seed production

Maturity of a crop is the stage at which a part of a plant to be used for future seed/propagation material is physiologically ready to produce another plant with and/or without further treatment. Different crops have different signs of maturity.

Because the participants will select different kinds of crop to produce for seed, specific emphasis shall be given to the crop selected. The trainer is therefore advised to update themselves with the appropriate knowledge of such crops before the training as they cannot all be mentioned in this guide.

2) Harvesting practices for seed

Each crop has its own harvesting practices used to obtain seed material. For example, in bananas, suckers are uprooted, while in maize cobs are ripped from the plant.

What is important is that whatever the part of the plant to be harvested, care must be taken to have and maintain the wholesomeness of the seed.

The trainer must therefore have adequate information on harvesting for the specific seed crop under consideration as this can not be provided in this section of the guide.

3) Post-harvest handling

Key areas under post-harvest management to be considered for the specific crops include;

- Treatment of the seed in preparation for planting or storage. For example, cereals and pulses must be carefully dried to the right moisture content. In case of maize or beans, moisture content of 13% - 13.5% is recommended.

- Practices such as threshing, winnowing, sorting, grading and packing are essential in preparing the seed. For vegetatively propagated crops, practices such as sorting and cleaning (for example by paring banana suckers/cobs) are essential before planting or transportation from the source garden to the planting site.

- Proper storage and preservation practices for different types of seed crops must be emphasised.

- The facilitator should encourage participants to brainstorm on the traditional practices of seed preservation and storage within the locality. For example, treatment of grain by mixing it with dry and crushed Neem leaves, ash, sand and husks have been practiced in some places to preserve seed during storage.

  Storage practices that maintain the integrity of the seed must be emphasized. For large

Figure 3.1: A farmer with a metallic grain seed storage silo for hermetic preservation.

quantities of seed, farmers may want to invest in indoor metallic and plastic silos or PICS bags (Purdue Improved Crop Storage bags) that preserve the seed hermetically without use of chemicals or in seed grain ware houses.

- Other planting materials, especially vegetative ones are better preserved in-situ, while some can be stored under strict conditions. The facilitator should be able to explore the details of all this.

MODULE FOUR: QUALITY CONTROL

A Caritas Kabale staff (left) guides a farmer in quality seed selection

6.1 Overview

Having clear quality control mechanisms is very important for the non-commercial seed. In the case of Quality Declared Seed (QDS), buyers mainly rely on the word of the seed producer and the quality control mechanisms physically in place to guarantee that the seed is of good quality.

The seed security committee should be tasked with developing quality control guidelines in consultation with the farmer group members and other stakeholders such as researchers and member organisation staff among others. At this stage, necessary facilities for ensuring quality seed are established. These may include; simple seed processing facilities such as recommended shelling equipment (where applicable), materials for drying seed materials (polythene materials, tarpaulins or raised stands) and seed storage facilities.

Germination percentage testing is also conducted under this phase. Ideally, seeds that have less than 80% germination potential should be considered bad seed and should not be given out as seed but grain/food.

The seed security committee therefore needs to be trained to successfully undertake and spearhead quality control measures at farmer group level. The initial trainings could be conducted in training phase under module 3 and technical follow up trainings can be conducted at quality control phase in this module. In this module, documentation is very important for record keeping and reference purposes. Documentation ensures that at any one point, there is justification that the quality controls are clearly stipulated and being followed within the seed production and management processes.

Quality of the seed does not begin at the harvesting time but right from the planning phase to seed distribution phase. Thus this module is not a standalone but cuts across the whole cycle of seed production. Keys sessions covered in this module include the following;

1. Understanding quality control
2. Setting quality control guidelines
3. Seed quality evaluation

Session 1: Understanding quality control

Length	1 day
Session Overview	Having clear quality control mechanisms at various levels of the seed chain is very important for the non-commercially certified (Quality Declared Seed). This session looks at developing and finalizing quality control guidelines and putting quality control mechanisms in place to guarantee that the seed is of good quality.
Learning Objective(s)	• To enable farmers to come up with quality control guidelines at various levels of the seed chain • To put in place physical quality control mechanisms for seeds in question. • To enable farmers apply different assurance mechanisms to guarantee the future seed users of the quality.
Preparation	Review updated literature on quality control and quality assurance mechanisms from different authorities such as research centers, Uganda National Bureau of Statistics and group internal controls.
Materials	Facilitators guide, flipcharts, markers, equipment such as moisture meters, sample of seed, sample of seed handling equipment
Session Type	Presentations, plenary discussions and practical demonstrations

Key learning points

a) The quality guidelines and control mechanisms (standards) will determine the quality of seed produced.

b) Use of documented standards during this session will make the information more authentic and acceptable by interested parties. Citing the seed policy guidelines such as national seed policy, seed regulations, East African grain standards and UNBS is ideal.

Facilitator's notes

The key attributes of seed quality can be listed as follows.

- Germination: Germination is the ability of the seed to produce a normal seedling under favourable conditions. The germination rate of seed cannot be determined by looking at the seed, except for the vegetatively propagated crops. It requires a germination test or waiting until the seed is planted to know its germination rate. Germination is affected by seed storage. For instance, seed stored under high temperature and relative humidity that result in the rapid deterioration of legumes and vegetable seed but cereal crops such as rice, wheat, millet, sorghum and maize are less affected. Maintaining low seed moisture content is essential for maintaining high seed germination.

- Physical purity: It is easy for farmers to see if the seed is clean, free from inert material (such as chaff, stones, broken seed, and dirt), damaged by insect attack and free from dead or live insects. Seed should be relatively uniform and should not contain immature grains. Farmers sometimes clean seed before planting depending on the planting method. Seed can also be attacked by insects during storage creating damaged seed that may not germinate and grow.

- Seed Health: Seed can carry diseases or pests that will later attack the plant or be transmitted to other plants. It is therefore important that seed is free of pests and diseases. Seed health may not be determined by looking at the seed and requires seed health testing or growing the seed to the seedling stage. Seed may be damaged physically during storage meaning it can be more easily attacked by diseases. Monitoring of seed fields to identify and address disease problems is the main way to address seed health but seed treatment is also used.

- Varietal purity: Varietal purity means the seed is of one variety and not a mixture of varieties or seed of various crops. It is very important that seed selection is done for all crops

- Moisture content: Moisture content is the amount of water contained in the seed sample and is expressed as a percentage of the weight of the original sample. It is one of the most important factors in maintaining seed quality and is closely related to other aspects of physiological seed quality such as seed maturity, mechanical damage, seed drying, storage life of the seed, and susceptibility to insect or disease infestation. Moisture content can be determined by electronic moisture meters or by oven drying method in the laboratory.

Physiological

- Pest infestation (disease/pest free)
- Moisture content
- Viability (germination test)

Environment

- Clean growing environment
- Isolation distance
- Agronomic practices
- Use of clean farm implements (Farm hygiene and sanitation)

N.B: Documentation is key in assuring the public of the quality of the seed produced. Pictorial/video is recommended.

Quality control checklist

Stage	Parameters	Comment
Procurement	• Source • Viability (germination test) • Seed features (physiological, genetic and physical)	
Site selection	• History of the site (previous crops grown in last two seasons) • Indicator plants (plants that point to specific environmental conditions of a particular place) • Soil fertility and existing management practices	
Sowing/planting	• Plough depth • Seed bed preparation • Spacing • Planting depth • Time of planting • Protection from adverse conditions (for crops that begin in the seed bed)	Rouging
Field management	• Weed management • Pest and disease management • Rouging of off types • Soil fertility and water management	
Post-harvest handling	• Time of harvesting • Transportation • Harvesting equipment • Storage facilities • Sorting and grading • Packaging and labelling	

Session 2: Setting quality control mechanisms

Length	1 day
Session Overview	There should be uniform and visible effort in place to control and assure seed quality. The mechanism in question must start from the time foundation seed is sought, through planting, field management, postharvest handling and distribution. It is important to design a documentation mechanism of all these processes and emphasize traceability.
Learning Objective(s)	• To help participants to proactively design seed quality control guidelines • To enable participants design and adapt seed quality control templates
Preparation	Mobilize all the participants to ensure they attend in person
Materials	Seed quality assurance form template.
Session Type	Presentation and group work

Key learning points

a) The mechanisms to control seed quality must be understood and applied by all the participants uniformly.

b) With Quality Declared Seed, it is the responsibility of each member of the farmer group to apply seed quality control strategies because in case one person breaches them, then the entire group may be disqualified in case they need to get QDS certificate from Ministry of Agriculture, Animal Industry and Fisheries (MAAIF).

Facilitator's notes

A recap is done about session 1 of Module Three (training) to get a reminder on the properties of a good seed.

At this point, the facilitator will ask participants to share some of the existing quality control measures for a specified enterprise in their group/community. This will help in coming up with the quality control guidelines.

Note: Farmers have to ensure keeping the quality of the seed depending on the quality standards set by the group.

Parameters to look at when setting guidelines for quality control measures

Genetical
- o True to type (variety)- Isolation distance
- o Colour

Physical
- o Size
- o Deformity (broken, wrinkled)

Session 3: Seed quality Evaluation

Length	1 week
Overview	Once seed is available, either through procurement as foundation seed or multiplication from seed security gardens, it should be subjected to an evaluation to ensure its quality. This will involve practically doing germination test, purity analysis and health evaluation
Learning Objective(s)	To enable participants do a seed quality evaluation before subjecting the seed to further processes.
Preparation	Mobilize all the seed materials to be evaluated and make ready the evaluation checklist.
Materials	Evaluation checklist, seed lot
Session Type	Group work and presentation.

Key learning points

a) This task is carried out to confirm the effectiveness of the seed quality control mechanisms put place

Facilitator's notes

Quality evaluation tests, especially germination test, should be conducted at least twice; the time after seed processing (when the seed is going to the store) and at the time when starting to distribute or plant the seed. Other quality tests could include health and purity analysis. These should be conducted separately for each seed lot.

Note: A seed lot is described as a given quantity of seed having similar characteristics and history such as produced from the same field, by the same farmer(s), under the same management practices, in the same period etc. Sampling must be effectively done to have the seed lots well represented. Different methods and tools are available for seed sampling and the trainer should be able to introduce them to the participants.

Purity test

Pure seed refers that seed with all characteristics for the crop species under consideration for seed on matter whether they are mature, immature, damaged undersize, shrivelled or germinated seeds, provided they can be definitely identified as the species under consideration.

Seed samples can contain impurities such as weed seeds, seeds of other tree species, detached seed structures, leaf particles and other material. The object of purity analysis is to determine the composition by weight of the sample being tested. To do this, the sample is separated into component parts. When purity analysis is to be done, it should be the first test to be carried out because subsequent tests are made only on the pure seed component.

The working sample containing all the impurities is weighed and then the pure seed is removed and weighed separately. ISTA rules (ISTA, 1976) prescribe that weighing should be done in grams to the minimum number of decimal places necessary to calculate the percentage of its component parts.

The percentage of pure seed is calculated as follows:

$$\text{Purity \%} = \frac{\text{Weight of "pure" seed}}{\text{Total weight of original sample}} \text{ X } 100$$

Or

Purity % = Measure of pure seed/Measure of original sample x 100

Germination test

Participants should be able to analyze whether the seed to be planted or kept will germinate. The facilitator must take note of the dormancy period. Dormancy period is the time between seed maturity and ability to germinate. Some seeds are unable to germinate just after harvesting/maturity while others once mature simply start to germinate. For example, red beauty groundnuts do not have any seed dormancy period and can therefore start to germinate in the garden before harvesting as long as conditions in the soil favour germination.

A simple germination test can be done at farm level. For example, count 100 seeds and plant them in a clean field at a spacing of 1cm and observe the germination time for the seed in question. Count out all those that have been able to emerge from the soil. Alternatively, use 4 samples (in four dishes) filled with sterilised sand (preferably lake sand) to plant there 100 seeds in each and observe germination. If they all emerge, it is 100% germination because it will be 100/100. If say 90 emerge in each it will be 90% (90/100). Otherwise, count the germination percentage from each dish and get average for the four to obtain average germination. Use documented standards from national seed certification service in MAAIF to compare whether the ratio of germination of a given seed lot passes the quality test.

Other tests to be covered by the facilitator could include; moisture, health and viability testing.

Template for summarising test/analysis results

Date	Name of crop	Seed lot number	Type of test	Test result	Standard acceptable	remarks
	E.g Maize	No. 1	e.g germination	E.g 95%	E.g 90%	E.g seed lot passed test

MODULE FIVE: PROCUREMENT

Quality seed should be procured for successful multiplication

7.1. Overview

After the farmers have selected the seeds of their interest, been equipped with the necessary skills in seed multiplication and management, the next step is procurement of foundation seed for multiplication. At this stage, identification of reliable sources of seed is very important and this has to be from a trusted source such as indigenous seed banks, researcher/seed breeders or a seed company for the case of improved Open Pollinated Varieties (OPVs).

The procurement role is spearheaded by the seed security committee. Ideally, the preferred seed should be that that has already been introduced in an area and farmers have developed trust in the seed variety. Alternatively, for the case of newly introduced varieties, farmers can visit trial gardens where the seed is currently being grown to establish whether the plants have the required characteristics. If there are no such trial gardens and the farmers are still interested in the seed, then initially, a small quantity of seed can be procured and a demonstration garden established under recommended agronomic practices to study the performance of the new seed variety. If the characteristics are desired, then the seed security committee can proceed and buy the foundation seed for multiplication.

The seed security committee should establish linkages and good relations with the researcher/seed companies such that they can follow up with the farmer group on the progress of multiplication from time to time. The duration for this phase is about two weeks.
The facilitator together with the farmer group will have to list the possible sources of seed with short description on good practices and category of supplier. The sources may include; lead farmer, research institutions and indigenous/organic farmers.

Three sessions comprising this module include the following;

1. Determining the seed source
2. Establishing and managing relations with seed sources
3. Key information for procuring seed and other materials

Session 1: Determining the seed source

Length	Between 1-5 days
Overview	As seen in the previous sections, seed, especially foundation seed must be obtained from reliable and acceptable sources. This session will guide participants on how to decide on the source of secure foundation seed.
Learning Objective(s)	• To enable participants analyze the likely sources of foundation seed • To enable participants to prequalify potential providers of foundation seed.
Preparation	Revise the quality specifications of a good seed
Materials	Stationery for documentation
Session Type	Brainstorming, field visits

Key learning points

a) The source selected to provide foundation seed must be trusted even by those who will later want to use the seed after multiplication

b) Both NARO and a host of other informal sources can be considered at this point.

Facilitator's notes

Allow the farmers to think about the likely sources of quality foundation seed. Use expert informants such as those in the respective district production departments and CSOs to get information on local seed breeders or suppliers of foundation seed of the crops selected.

Informal seed sources could be considered. These include; indigenous seed banks already producing Quality Declared Seed or individual farmers having the required seed and of the required qualities, especially the vegetatively propagated crops such as bananas, cassava and yams among others.

Farmers should give priority to research institutions in sourcing for foundation seeds especially if the crop in question is produced within the existing research centres. Some of these include the national institutes such as: NALIRRI in Serere, NaCRRI in Namulonge, the National Agricultural Research Laboratories in Kawanda, NACORI in Kituuza. Also the Zonal Agricultural Research Institutes namely, Buginyanya ZARDI - for Eastern;, Mukono ZARDI - for central, Ngetta ZARDI for Northern, Abi ZARDI for West Nile; Mbarara ZARDI and Rwebitaba ZARDI for western, and Bulindi ZARDi for the Lake Albert Crescent Zone.

Commercial seed companies can also be engaged to find out if they have the foundation seed of the crop in question. These should be renowned and reputable seed companies.

Session 2: Establishing and managing relations with seed sources

Length	Continuous
Overview	Since farmers are not seed breeders (until they start breeding), they can only rely on other stakeholders to obtain foundation seed when need arises. This section explores the strategies that can be used to establish and maintain close relationships with various seed sources.
Learning Objective(s)	To strengthen the relationship building and management capacity of farmers with identified providers of foundation seed.
Preparation	In a participatory manner, map out the players who can act as a source of foundation seed. Consider NARO for commercially improved OPV seed or community members for indigenous seeds. Obtain relevant contact persons and addresses before hand, if possible.
Materials	Transport, airtime, contact
Session Type	Brain storming, learning visit

Key learning points

a) Participants should be familiar with the likely providers of foundation seed.

b) Establishing good relationships is essential as no one can do everything in the seed value chain and no one can transact with an alien person.

c) Avoid being overtaken by the interests of breeders who may convince the farmers to take on seeds that are against the doctrine of CMSS.

d) Farmer-led research should be put into consideration.

Facilitators' notes

Make a survey or exploration visit to the identified sources before taking farmers to visit them. In this visit, clearly explain the purpose of the seed required. Remember, the purpose of CMSS is to enhance farmers' easy access to quality seed within their communities. It is not about competing with the commercial seed companies.

Criteria for selecting the supplier/seed source

The following parameters may be used in selecting the best seed supplier.

- Distance to the supplier.
- Quality of the seed.
- History/reputation of the supplier.
- Ease of transport.

Session 3: Key information for procuring seed and other materials.

Length	1 day
Overview	Before going out to get the seed and any other materials for use in the CMSS process, it is essential to be armed with adequate information on a number of issues. The procedures and information should be clear to all participants involved in the seed business.
Learning Objective(s)	• To enable participants document the procurement procedures. • To support farmer groups to identify and select persons to the procurement committee. • To help participants prepare key information necessary for effective procurement process.
Preparation	Adequate mobilization of the participants
Materials	Stationery
Session Type	Brainstorming

Key learning points

a) The focus here is to organise the procurement process by selecting individuals to spearhead procurement activities.

b) Procurement guidelines should also be developed at this point in order to avoid future challenges

Facilitator's notes

Participants should understand the importance of procurement and why they should take it seriously. It is through this process that a farmer group obtains the seed and other materials for use in their activities of seed production. A well organised procurement process reduces the time taken to procure seed, reduces the cost of procurement, enables access to quality materials, prevents conflict of interest and allows for ease of follow up in case of anomalies in the items procured.

Procedures of the procurement process could include;

- How to decide when to procure.
- How to decide on whom to participate in the process. A procurement committee should be put in place either permanently elected or nominated at the time when procurement of any items is likely to take place. Also they should determine how to co-opt a technical person outside the farmer group to give technical support.
- How to decide on where to procure.
- How to obtain information from the prospective suppliers.
- Who to authorise payment for the items to be procured.

The following information should be clear each time procurement is made;

- Clear specification of the order for items needed such as the type of crop, variety of seed, date when the seed is required etc.
- Quantity of seed to be purchased should be clear. This enables spending only on what is required. In order to be simplistic for farmers, avoid seed rate calculations. Use the known seed rates per acre and multiply by the number of acres to be planted to know the quantity of seed to buy.

  "For example, using maize, the known seed rate is 10kgs per acre when planted at a spacing of 75cm x 60 cm. Therefore to plant ½ acre, say ½ x 10 = 5 kgs".

- Early booking is necessary to avoid getting seed too late in the season.
- In case of grain seed, a sample should be obtained for germination test. After the germination test, a full order is made by the procurement committee.

MODULE SIX: SEED MULTIPLICATION

Farmer group members establish their seed multiplication garden using recommended agronomic practices.

8.1 Overview

Seed multiplication is one of the most important aspects of the CMSS model. The success of the model is largely dependent on how best the multiplication phase is conducted. The major part of the training phase should therefore focus on seed multiplication for the selected crops. The selected multiplication sites should have fertile soils and soil fertility improvement measures should be in place. Ideally, the selected garden should not have been used to grow the same crop for at least the last 2 seasons.

The selected garden should also be easily accessible and located at a recommended isolation distance from other gardens that have the same crop to avoid admixtures. Recommended agronomic practices should be applied and regular monitoring of the multiplication garden should be observed to ensure good quality seeds. The duration for this phase varies according to the maturity period for the selected crop.

The major sessions for this module include the following;

1. Site selection
2. Establishment of multiplication garden
3. Recommended agronomic practices
4. Periodic monitoring and field inspection

Session 1: Site Seletion

Length	1 day
Overview	This is a practical session where farmers apply the knowledge learned during the training module to select the most suitable site for seed multiplication. Remember that this could be a farmer group garden offered by a member or hired. It should be large enough to provide for farmers' seed requirements.
Session Objective(s)	To enable the farmers select the most suitable site for seed multiplication.
Preparation	• Mobilize all participants in advance. • Advise participants to earmark more than one site (if available) for selection.
Materials	Measuring tape or stick depending on the local people's normal methods of measuring land.
Session Type	Field practical

Key learning points

a) Appropriate site will determine the ease with which other garden operations will be made. A fertile site near a busy road or public place will aid visibility.

b) A sizeable piece of land will enable farmers to produce enough seed for immediate and future use. Farmers should therefore be able to estimate their seed requirements well.

Facilitator's notes

It is advisable that common or group gardens be used for the initial phases of seed multiplication. Individual seed multiplication gardens may be applicable only when; 1) farmers have mastered seed production skills, 2) internal quality control has been strengthened and 3) there is need for

commercial seed production.

A number of factors need to be looked at during the selection of a place for seed multiplication.

These include;

- History of the site. Farmers should pay attention to;
  - Previous use of the land. The land should not have grown the same crop at least for the past 2 seasons.
  - There should not be any disputes over the selected piece of land.
  - Members should sign a Memorandum of Understanding (MOU) with the land owner to avoid frustration in the period of seed multiplication.
- Size of the land for multplication should be adequate for farmers' seed production needs.
- Crop requirement
  - Topography; slope and direction of land where to grow seed. For example, in case of low land rice, flat laying land is preffered.
  - Water requirements
  - Soil type and depth should be as per crop requirement
  - Isolation requirements, in terms of distance required between seed garden and garden of aonther crop of the same type.
  - Soil fetilitiy levels; Encourage the group to do soil testing, if possible, through contacting District production departments.

Session 2: Establishment of the Multiplication Garden

Length	Spread between 1 week and 2 months depending on the level of land preparation required.
Overview	Once the site has been identified, the next activities in this session focus on land preparation up to when the seeds have been planted in the multiplication garden. This multiplication garden also serves as a demonstration garden especially for first timers.
Learning Objective(s)	• To equip participants with practical skills of establishing a seed multiplication garden. • To give guidance to the farmer group on the preparation and establishment of the multiplication garden.
Preparation	• Ensure that farmers have prior knowledge or training in the agronomy of the crop in question. • Ensure that all materials required to prepare and plant the garden are available.
Materials	Garden tools, seed, fertilizers, reference literature guide, labor
Session Type	Field practical

Key learning points

a) The quality of land preparation will determine the level of success of the seed multiplication.

b) Any errors done at this point may be hard to correct especially concerning plant density

c) A technical person should be available at this stage until planting is finished.

d) All participants should get directly involved in establishing the multiplication garden to ensure that they gain hands-on skills..

Facilitator's notes

- Labour requirements - the farmer group should ensure that it has adequate labor provided by either the members or hired.
- Land preparation - land should be prepared early. If possible, first ploughing must be done at least 2 months prior to planting.
- Clear demarcation of the garden and planting holes is a must.
- Planting should follow recommended depth and spacing of the specific crop being grown for seed.
- Intercropping should be avoided where there is a likelihood of contamination, competition or disruption in the growing process.

Note: Some crops require nursery establishment especially vegetables. This should be planned for in advance.

Session 3: Recommeded agronomic practices

Length	Season long
Overview	After the multiplication garden has been established, farmers apply the agronomic knowledge of the selected seed crop gained during the previous training sessions. The session covers practices such as weed control, pest and disease control, soil fertility management and harvesting practices.
Learning Objective(s)	To equip participants with skills for practical application of the theoretical knowledge concerning agronomy of the selected seed enterprise.
Preparation	Since this is a season long process, preparation should be tailored to the nature of agronomic activity to be implemented in the multiplication garden.
Materials	Garden tools, protective wear and record books
Session Type	Practical

Key learning points

a) There should be a technical person at the start of implementation of agronomic practices where necessary.

b) All members should be advised to attend and actively participate in each activity of this session to ensure acquisition of skills on site.

c) Since theoretical trainings should have been covered in advance, the learning here should take place in the garden. Focus needs to be on learning about the current practices related to the selected crop.

Facilitator's notes

The facilitator should be well equipped with the knowledge and skills about the agronomy of the crop in question in order to give proper guidance. At each agronomic activity session, recap with the farmers about what was learnt during the training module on agronomic practices.
The following are key agronomic practices to be emphasized by the facilitator.

- Weed control practices specially chosen for the current status of the garden.
- Disease and pest control practices concerning the prevailing crop conditions.
- Soil fertility management practices especially assessing whether practices applied before or during planting were effective and deciding whether to further boost fertility.
- Water conservation practices: Ensure application of appropriate water conservation practices. Also monitor response of plants to any water stress and recommend appropriate mitigation measures
- Harvesting practices of the crop being grown. This activitiy should be planned before the crop reaches maturity and assessed through continous field monitoring. The right maturity time and practices for harvesting should be applied against the maturity signs specific to the seed crop under multiplication.

Session 4: Periodic monitoring and field inspection

Length	During the entire growth period
Overview	Field inspection is a distinct practice very particular to seed production given its application intensity and relevance. Inspection can be done by various stakeholders such as farmer group members, seed security committee, technical advisors, certified field inspectors and interested parties to ensure that quality is assured.
Learning Objective(s)	• To provide participants with field inspection skills used in seed production. • To facilitate identification of seed production challenges that should be remedied. • To contribute towards quality assurance of the seed under production.
Preparation	Make sure that the quality control checklist is drawn up for use during inspection.
Materials	Record book, field tools for taking action against challenges such as weeding, disease control or fertilizer application.
Session Type	Field practical, observation

Key learning points

a) All participants should attend the monitoring exercises.

b) A technical person should be available at least during the first monitoring and inspection exercise.

c) Inspection should be done throughout the seed growing period and during the post-harvest handling period.

Facilitator's notes

To ensure smooth flow of activities and to keep track of the progress, there has to be continous monitroing of the process.
The seed security committee should inspect the garden at least once a week for the following;

- Weeds
- Off types; crops in the seed garrden of similar species but with differing characteristics compared to the main variety planted
- Growth rate and stage.
- Pests and diseases in the garden and at the time of storage
- Neighborhood of the garden to ascertain isolation distance.

Customise a checklist for use during monitoring to record down all observations, activities and recommendations about the multiplication garden.

Remember to involve the most concerned stakeholders during the monitoring activities. These may include; the production department of the District and research institutions among others.

Build the capacity of the seed security committee members to enable them spearhead monitoring and inspection exercises whenever the technical person is not available

Field monitoring and inspection techniques

Diagonal field inspection: This practice involves the inspector dividing up the field into 2 to 4 equal parts depending on the size of the garden. The inspector then moves through the gardens using horizontal and diagonal imaginary lines to be able to gain access to a representative piece of the garden. This allows for representative identification of the above observable features and deciding on corrective actions.

Field inspection by sampling: This is preferably done by technical inspectors. It helps in decision making to reject or accept the field for certified seed production purposes depending on the number of impurities per 10m2 plots within a field according to the size of land. If the number of impurities ranges between the acceptable and rejection limits, make additional counts equal to the number of original counts. The table below summarizes the process of purity inspection on the basis of off-types.

Table 6.1: Purity standards for a given size of multiplication garden in terms of number of off-type crops.

Size of field (ha)	Number of counts in plots of 10m2 each	Acceptable total impurities in all counts (average)	Impurities for crop rejection in all counts
Up to 10 ha.	11	11	18 and above
Up to 10 ha.	36	36	37 and above

Source: OECD (2001)

Note: If impurities range from 12 to 17 (inclusive), more 17 counts are made. The Field is accepted when total impurities from original and additional counts do not exceed 36. Beyond 36, field is rejected.

Checklist template for monitoring and inspection

Crop name:..... Variety..... Acreage..... Planting date..... Expectedharvesting date.....				
Date	**Name of inspector(s)**	**Observation(s)**	**Action taken (if any)**	**Recommendation (if any)**

Actions that can be taken during field monitoring/inspection

Roguing: This refers to the removal of inferior, diseased, pest infested or off-type plants from the seed garden. These should be bagged, carried away and buried in a pit far away from the garden. In case there are more identified cases to be rogued during inspection, a full exercise should be done for the entire garden. Effective roguing requires that those doing it should have full knowledge of the characteristics of the intact or healthy or pure plant of the variety in question. These characteristics could range from colour, morphology, size and growth rate.

Weeding: This is done in case weeding is due and weeds have been observed.

Pest and disease control: This is done depending on the intensity and threshold of infestation to warrant application of any control measures.

Destruction of neighbouring contaminating varieties in case they do not conform to the isolation distance.

Monitoring/inspection during post-harvest handling

This should be directed towards the following;

- Methods of processing such as threshing to avoid physical damage;
- Seed handling practices in order to avoid contamination;
- Storage practices to avoid contamination, improper storage, pest attack and quality degeneration.

MODULE SEVEN: SEED DISTRIBUTION AND MARKETING

A seed security committee member (left) exhibits seed during a national seed event,

9.1 Overview

This module is dependent on what was decided at planning phase regarding the purpose of undertaking the seed security initiative. At this stage the farmer group should have made a common decision whether the seed will be sold to the group members, given as seed loans or sold to members and other farmers as a source of revenue for the farmer group. The seed security committee calculates the cost of production to establish the price of seed to be given out to members. A seed distribution schedule can be developed indicating the names of beneficiaries, location, seed variety given, quantity of seed given and the mode of payment where applicable. The seed security committee also engages itself in sensitizing the wider community about the availability of quality seeds in case there is any for sale such that they get more clients while also disseminating the good practices.

This module is divided into four sessions;

1. Seed sharing
2. Establishing seed revolving schemes
3. Production of Quality Declared Seed
4. Developing seed business plans.

Session 1: Seed sharing

Length	1 hour
Overview	This session will help the facilitator to support the exercise of seed sharing within the farmer group.
Learning Objective(s)	To build the farmer group members' capacity to equitably share seed produced from the seed multiplication garden.
Preparation	• Have participants conduct a cleaning work of all seed. • Be sure of the seed quantities available. • Have the activity participation registers in place.
Materials	• Records book, activity attendance records, weighing scale, ready seed. • Conduct a farm visit to each member (farmers visit one another) to verify readiness to receive the seed.
Session Type	Practical distribution of seed

Key learning points

A well implemented seed sharing exercise with all the participants interested in the future activities of the CMSS model.

Facilitator's notes

A recap on Module Two, session 4 (for seed distribution guidelines and procedures) is necessary.

The facilitator should be available at least for the first time of sharing to moderate the sharing exercise.

It is better to share seed towards the start of the planting season. Before this time, the seed is kept on a location at the seed bank to ensure its quality during storage and avoid temptation by members

selling or eating their share.

Design a delivery route (map) that will also be used in the follow ups on the seed planted.

A tracking tool can be developed by the participants with the guidance of the facilitator (see sample below). This will help the facilitator and seed security committee during follow up of members to track how they are using the seed.

Example: Tracking/sharing tool for seed distribution

Group name.....

Crop ..... variety.....

Name of recipient	Quantity received	Location	Delivery date	Qty for return to group	Sign
E.g. Robert Shosha	20kg	Namabwere	22 May 2015	20 kgs	

Session 2: Establishing seed revolving schemes

Length	One production season
Overview	The emphasis of this session is to build the farmers' capacity to produce seed at farm level while having a group approach in seed saving.
Learning Objective(s)	• To enable farmers learn the practices of seed saving at group level • To build farmers' resilience to seed shortage even during extreme weather conditions.
Preparation	Effective mobilization
Materials	Farmer group level seed production bi-laws, records book
Session Type	Brain storming

Key learning points

Farmers' active deliberation on this topic will help them own the seed resolving scheme.

Facilitator's notes

Because farmers will want to produce some seed at individual/household level, it is necessary that they agree on how they will get the foundation seed from the group and later return it in order to replenish the group seed bank. This will help in situations where the seeds have degenerated and the individual farmers need to start afresh with foundation seed. They can decide to sell the seed and use the money to buy fresh foundation seed or invest in their own seed breeding.

Allow the farmers to brainstorm on the benefits of establishing a seed revolving scheme.
Support farmers to establish quality control guidelines for seed produced at household level by re-capping the session on quality control. They should agree on the quality of seed to bring to group in order to maintain their integrity.

Session 3: Seed Production for sale and production of Quality Declared Seed

Length	1 day
Overview	Since farmers will have developed stronger capacity in seed production, they might want to invest in a seed business; that is, selling seed to the community or producing for other seed companies. This session will explore how the farmers can be supported to fully explore this commercial opportunity.
Learning Objective(s)	• To equip farmers with techniques of adhering to production guidelines of Quality Declared Seed for selling to community members. • To build farmers' capacity in managing business related to seed.
Preparation	Effective mobilization of all members. Consult with commercial seed companies on how they work with farmer groups as seed out-growers.
Materials	Training stationery
Session Type	Presentation and discussion

Key learning points

a) Since seed is a key commercial enterprise, the ability of farmers to engage in seed production for sale should aim at not leaving them seed insecure.

b) A person from the commercial seed sector could be of help to familiarize the farmers into seed for business.

Facilitator's notes

Producing seed for sale requires the farmer group to have better marketing skills. Publicity of the group is also essential to creating awareness of the seed products that the group has. Thus the group has to;

- ☞ Participate in seed fairs.
- ☞ Collaborate with seed companies, research institutions and other stakeholders.
- ☞ Organise local seed fairs.

Locally produced seed displayed in a community seed bank

In general farmers can be guided to apply the 4Ps strategy of marketing their seed business as explained below;

Product: Ensure that the type of crop and variety is that which the end consumers (farmers or seed distributors) require. The quality should be maintained and assured. Keeping up-to-date records is important in defending product quality. Packaging seed in appropriate

materials that are transparent and full labelling/branding is very important (See Fig. 9.2 below). Ensure that quality declared certification is issued to the farmer group to openly enjoy the market niche of Quality Declared Seed.

Price: Use appropriate pricing strategies that move the seed very fast on the market. Avoid exorbitant prices and too cheap prices. Apply the cost benefit analysis method and a mark up (profit top up) not exceeding 30% of the total costs of production and distribution.

Place: Ensure seed is available at the right place and at the right time for the customers. Reach out to groups and organisations to arrange delivery arrangements without waiting for them to pick the seed themselves. If the seed is to be found in one place, make sure that the store is appropriate, the place is tidy and there is justification of total quality control. Have records about the seed available in case some customers want to prove quality of process and origin.

Promotion: Never sit at your home and wait for customers to find you. Place announcements on radio or community public address systems as long as you have Quality Declared Seed certification. Give guarantees, discounts and tips to the new customers. In case farmers buying the seed are within your reach, perform on-site visit to their farms to advise them on how best to manage the crop in the garden and post-harvest handling in order to get the most out of your seed. Make it a point to attend seed fairs at both local and national levels (as long as the seed quality is guaranteed) in order to sell out your brand.

Tips for Quality Declared seed systems

The concept of the Quality Declared Seed (QDS) System was developed based on the premise that there is limited use of certified seed especially among the subsistence farmers attributable to high cost caused by elaborate certification procedures. This is mainly with farmers in developing countries, especially Africa and Latin America, who are mostly cash strapped and consider seed as an expensive input, especially with the alternative source provided by seed saving culture and sale of seed by the informal sector. The QDS System is less rigorous with less number of times of field inspections to be conducted. This cuts down considerably the cost of seed certification to increase certified seed utilization. It is not a replacement of the certified seed system, but can be used to support such farmers to access quality seed at lower cost.

FAO defines QDS as seed produced by a registered seed producer which conforms to the minimum standards for the crop species concerned and which has been subject to the quality control measures outlined in the guidelines (FAO, 2006). It is important to note that Quality Declared seed may reproduce quality declared seed if the seed lot has been officially tested and approved.

Principles;

Quality Declared Seed is based on four principles:

1. A list of varieties eligible to be produced as Quality Declared Seed is established.
2. Seed producers are required to register with an appropriate national authority
3. The national authority will check at least 10% of the seed crop
4. The national authority will check at least 10% of the seed offered for sale under the designation of Quality Declared Seed.

Register of seed producers

All farmers or groups producing QDS have to be registered. The government designates an

appropriate authority to register producers within the Ministry of Agriculture.

Eligibility for registration

- Access to seed of an eligible variety suitable for further multiplication, either as Local seed or seed produced from conventional plant breeding.
- Suitable land for production or in a position to contract suitable farmers
- Nominate suitable qualified seed production staff to supervise production
- Access to suitable seed conditioning equipment and storage facility
- Access to a seed testing laboratory and trained staff

Seed production

Quality of seed shall be responsibility of the registered producer by employing the following quality control measures:

1. Seed production fields have satisfactory previous cropping histories.
2. Ensure effective rouging of fields to rid of off types, weeds and diseases plants.
3. Approve only fields which meet seed inspection standards
4. Maintain identity of crop at harvest and deliver for conditioning on identified containers.
5. Maintain well variety identity and varietal purity during seed conditioning. Ensure seed at proper moisture content.
6. Serve and submit samples for tests in seed testing laboratory.
7. Keep records of all activities, i.e. inspections, test results, and completing of Quality Declared Seed declaration which is attached.

Session 4: Developing seed business plans

Length	2 days
Overview	A business plan is a key guiding documents necessary to run an enterprise on business basis. Once the farmers decide to produce seed a business. It is necessary to think through and produce a business plan.
Learning Objective(s)	• To equip seed producing farmers' with capacity to develop and work with business plans in seed related businesses.
Preparation	Effective mobilization of all members to ensure adequate participation. Collective relevant information regarding the different costs and requirements for seed production in relation to social, economic, financial and technical aspects of seed production.
Materials	Training stationery, reference business plan guides.
Session Type	Presentation and discussion

Key learning points

A simplified business plan should be considered for development to allow for easy understanding by the farmers. Make it clear to them that once developed, the business plan can always be revised to fit the prevailing circumstances such as growth in the business.

Facilitator's notes

Business plan development

- **What is a business plan?**
  A written summary of an entrepreneur's proposed business venture, its operational and financial details, its marketing opportunities and strategy, and its managers' skills and abilities.

- **Why make a business plan?**
  1. It guides the company's operations by charting its future course and devising a strategy for success
  2. It helps to attract lenders and investors
  3. It forces potential entrepreneurs to look at their business ideas in the harsh light of reality
  4. It is a tool for communication – gaining stakeholders' support

- **Business Plan in Summary**

  The key contents of a business plan include the following;

- **Business name:**
  Write your business name as registered in area, Registration number, Or add your proposed business name if not yet registered

- **Business structure:**
  It is a Sole trader, Partnership, Trust, Company or a Cooperative?

- **Business location:**
  Main business location i.e. LC 1, Parish, Sub County, District, Country
  Date when the business was established

- **Business owner(s) and their experience**
  List all of the business owners and their relevant experience including number of their years in the industry. Their achievement or wards can also be indicated.

- **Products/services**

  What products/services are you selling?

  What is the anticipated quantity of demand for your products/services?

The Market

- **Target market:**

  Who are you selling to or do you intend to sell to?

  Why would they buy your products/services over others (value proposition)?

- **Marketing strategy:**

  How do you plan to enter the market? How do you intend to attract customers?

  How and why will this work?

The Future of business

Vision statement:

The vision statement briefly outlines your future plan for the business. It should state clearly what your overall goal for the business is.

- **Objectives:**

  What are your short & long term objectives?

  What activities will you undertake to meet them?

- **The Finances**

  Briefly outline how much profit you intend on making in a particular timeframe.

  How much money will you need up-front?

  Where will you obtain these funds and in what proportion?

  How much of your own money are you contributing towards the business?

MODULE EIGHT: EVALUATION AND SCALING OUT

Members of the Seed Security committee conduct field inspection for their soya bean seed multiplication garden in Namayumba sub-county, Wakiso district

10.1 Overview

This is the last module covering the final phase of the CMSS model and it involves reviewing the performance of the model, documentation and sharing of best practices with other farmers, stakeholders and partners in order to improve future implementation. Experience sharing activities and forums are top on the agenda. Learning visits, farmer field learning activities and seed fairs are among the activities that can be implemented within this phase.

The sessions covered here include the following;

1. CMSS model evaluation
2. CMSS model scale out
3. Participatory variety release

Session 1: CMSS Model Evaluation

Length	3 hours
Overview	At the end of the implementation of most phases of the model, it is good practice to reflect on the key outcomes and lessons learnt from the entire process. Involve all stakeholders at various stages. Local leaders and technical officers from sub-county and district local governments are very important to involve here.
Learning Objective(s)	• To disseminate the results of the first cycle of the model implementation to all stakeholders. • To obtain feedback from stakeholders concerning the applicability and viability of the model in reducing seed insecurity challenges.
Preparation	• Effective mobilization of stakeholders. • Brief report on the progress made by the implementing partner. • Farmers should be prepared to share with stakeholders.
Materials	Progress reports, markers, masking tape, flip charts, refreshments (if available)
Session Type	Presentation and brainstorming

Key learning points

Involvement of stakeholders is key for the survival of any intervention in the community. Therefore make it a point to involve as many and diverse stakeholders as possible just as it is done during the first phase of introduction.

Facilitator's notes

Evaluation is done by both the facilitating agency and the seed security committee to look at the performance, challenges and gaps in the model.

This can be done every season (cycle) by the farmer group while the facilitating agency can do it at every phase together with the farmers. However, where external stakeholders are invited it can be done at the end of the cycle due to costs involved and their time limitation.

A tool called "most significant change" can be used. This tool enables participants to reflect on the hardships they went through before a particular intervention and the changes brought about by the intervention. Changes may include; skills gained, attitude and behaviour change or

livelihood improvement at individual/household level. The most important change, according to them, becomes the most significant change. The change is documented in detail from where the problem started, what was done to solve it, and how the change occurred to them in qualitative and quantitative terms.

Session 2: CMSS Model Scale out

Length	Depends on the choice of scale out activities chosen
Overview	This session will help in widening out the scale and coverage of farmer groups engaged in CMSS system. Activities here could include working with the current farmer groups to organize seed fairs, talk shows on radio, documentary reviews and press conferences where farmers and other stakeholders can get interested in joining the struggle to promote seed security through promotion of Quality Declared Seed produced by farmers in their communities.
Learning Objective(s)	• To share about the CMSS system used by farmers to produce own Quality Declared Seed. • To interest other groups in joining CMSS or buying quality seed from farmers.
Preparation	Preparation should aim at increasing participation and organizing relevant information and materials required for the selected scale out activities. Venues should be suitable for the activity in question.
Materials	Information leaflets, bulletins, progress reports, sample seeds
Session Type	Depends on the activity to be conducted but most of the activities must be as interactive as possible to create an environment of sharing.

Key learning points

a) Different categories of people should be invited using various scale-out activities as mentioned in the facilitator's notes below.

b) The choice of scale-out activities and the nature of information available will determine the success of these activities.

Facilitator's notes

Scale out is expansion of the model to other community members, stakeholders and new groups. This can be done through;

- Organising a local seed fair to create awareness of the CMSS model
- Case study documentation and sharing
- Experience sharing activities
- Learning visits (on farm learning)
- Media engagement. Media is engaged at this level to help in publicizing the CMSS model to reach as many interested stakeholders as possible. Where possible however, media should be involved at every stage of the CMSS model to show its applicability.
- Farmer's engagement

PELUM Uganda secretariat and the member organisation implementing the model should take the lead role at this stage to ensure that the experiences generated from the model reach out as wide and far as possible.

Session 3: Participatory variety release at farm level (seed breeding)

Length	Between 1 – 3 seasons
Overview	In most cases, farmers simply take on technologies that conventional researchers release. Certain varieties released do not satisfy consumers' and farmers' needs in some areas but they simply have to adopt them because of top down approach. The expenses involved in national breeding programmes are too high that varieties cannot be released at the pace farmers may prefer. Hence there is need to involve farmers in variety development processes and develop farmers' breeding knowledge and skills.
Learning Objective(s)	• To strengthen working relationships between NARO and farmers on seed breeding. • To build farmers skills of breeding crops for new varieties outside the confines of NARO.
Preparation	• Scout and identify approachable scientists and authorities in favor of involving farmers in the breeding and variety development process. They should be those that can ably share their skills with interested farmers in the breeding process of crops. • Identify farmers with interest in learning breeding skills. They should be patient and able to work freely with other people.
Materials	Flip charts, markers, masking tape, breeding equipment as determined by the technical person
Session Type	Theoretical presentation and practical demonstration.

Key learning points

a) It is important to identify friendlier scientists to train farmers in breeding practices and procedures to avoid frustrations in the process.

b) This is a long term learning process and only interested farmers must be involved.

Facilitator's notes

Because the traditional breeding centres cannot breed every crop especially the indigenous crops that are threatened by extinction and crops that have been highly commercialised now threatened by GMO infiltration, it is essential that farmers start actively participating in the breeding process and attain skills to effectively produce their own varieties. It is possible for farmers to gain skills in breeding and do it successfully as long as they have the interest and a strong vision.

Take time to look out for friendly breeder scientists, create rapport and precisely explain why farmers need to do on-farm breeding. This technical person should be able to share the theoretical and practical breeding knowledge with the farmers on the selected crops.

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ANNEXES

Annex I: PEEST analysis template

Seed security practices	Parameters
e.g seed saving	• Social
	• Economic
	• Ecological
	• Political
	• Technological

Annex II: SWOT Analysis template

Practice analysed: .....

Strength - -	Weaknesses - -
Opportunities - -	**Threats** - -

Annex III: Qualities that a leader must possess

(Adapted from John C. Maxuel, 1999)

1. Character: be a piece of the rock

Actions are the real indicator of character. Talent is a gift, but character is a choice which brings lasting success with people. Strong character is the foundation on which to build success

2. Charisma: the first impression can seal the deal

Charisma is being more concerned about making others feel good about themselves than you are making them feel good about you

3. Commitment: it separates doers from dreamers

A good leader must be committed to his/her work in the farmer group because everyone you lead is depending on you. Look at how you spend your time. Are you really committed or do you just say you are? Know what is worth dying for.

4. Communication: without it you travel alone

Simplify your message- it is not what you say, but also how you say it. Care about your audience - show the truth. Believe what you say, live what you say. The leader must be able to share knowledge and ideas and transmit a sense of urgency and enthusiasm to others.

5. Competence: if you build it, they will come

Competence goes beyond words. It is the leader's ability to say it, plan it, and do it in such a way that others know that you know how- and know that they want to follow you. Accomplish more than expected, inspire and motivate others

6. Courage: one person with courage is a majority

Courage is doing what you are afraid to do. You gain strength, courage, and confidence by every experience in which you really stop to look fear in the face.

8. Focus: the sharper it is; the sharper you are

The keys are priorities and concentration. A leader who knows what his priorities are but lacks concentration knows what to do but never gets it done. If he has concentration but no priorities, he has excellence without progress. But when he harnesses both, he has potential to achieve great

9. Generosity

Cultivate the habit of giving in your life. Be grateful for what you have, put people first. Don't allow the desire for possessions to control you and regard money as a resource. A leader must be objective and should not allow the sentiments of other
people to act on his own feelings. Reward each person fairly (no favourites)

10. Initiative:

Leaders know what they want and they push themselves to act. They take more risks and they make more mistakes but never quit.

11. Listening: to connect with your heart, use your ears

You have to be silent to listen. The ear of the leader must ring with the voices of the people. A good leader encourages followers to tell him what he needs to know, not what he wants to hear.

12. Passion: this is having unconditional love for what you do.

Concentrate on what you do well and do it better than anybody else.

13. Positive attitude: if you believe you can, you will
Your attitude is a choice. It determines your actions. Your people are a mirror of your attitude

14. Problem solving: you cannot let your problems be a problem. Leaders with good problems solving abilities demonstrate five qualities

- They anticipate problems
- They accept the truth.
- They handle one thing at a time.
- They do not give up on a major goal when they are down.

15. Relationships: if you get along, they will get along
The most important single ingredient in the formula of success is to know how to get along with people.

All people have some things in common

- They like to feel special, so sincerely compliment them.
- They want a better tomorrow, so show them hope.
- They desire direction, so navigate for them.
- They are selfish, so speak to their needs first.
- They get low emotionally, so encourage them.
- They want success, so help them win to feel special.

16. Responsibility: if you won't carry the ball, you can't lead the team. Success on any major scale requires you to accept responsibility.

17. Delegation:
No man who wants to do it all by himself or get all the credit for doing it will make a great leader. Leaders delegate their work to subordinates such that even in their absence the group still runs smoothly.

18. Self-discipline: the first person you lead is you
Self-discipline builds confidence and trust in the team you are leading. Integrity is the number one ingredient you cannot do without.

19. Servant hood: to get a head, put others first
A true leader serves. He/she serves people and their best interests. True leaders are motivated by loving concern rather than a desire for personal glory, thus are willing to pay the price.

20. Teachability: to keep leading, keep learning.
If you want your group to grow, you have to remain teachable.

21. Vision: you can seize only what you can see
A great leader's courage to fulfil his vision comes from passion, not position.
Vision is everything for a leader. It leads the leader and it paints the target. It sparks and fuels the fire within and draws him/her forward. It is also the fire lighter for others who follow that leader.

Remember
"if you can dream it, you can do it."

Published by:

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ISBN: 978-9970-477-30-2