Workshop report:
Training of Trainers on Sweetpotato Silage Making

Expanding Utilization of Roots, Tubers and Bananas and Reducing Their Postharvest Losses

September 2015

Prepared by:

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Expanding Utilization of Roots, Tubers and Bananas and Reducing Their Postharvest Losses (RTB-ENDURE) is a 3 year project (2014-2016) implemented by the CGIAR Research Program on Roots, Tubers and Bananas (RTB) with funding by the European Union and technical support of IFAD. http://www.rtb.cgiar.org/endure

The CGIAR Research Program on Roots, Tubers and Bananas (RTB) is a broad alliance led by the International Potato Center (CIP) jointly with Bioversity International, the International Center for Tropical Agriculture (CIAT), the International Institute for Tropical Agriculture (IITA), and CIRAD in collaboration with research and development partners. Our shared purpose is to tap the underutilized potential of root, tuber and banana crops for improving nutrition and food security, increasing incomes and fostering greater gender equity, especially among the world's poorest and most vulnerable populations.
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LIST OF ACRONYMS

CIP  International Potato Center
FCR  Feed Conversion Ratio
IFAD  International Fund for Agricultural Development
ILRI  International Livestock Research Institute
KARLO  Kenya Agricultural and Livestock Research Organization
MUARIK  Makerere University Agricultural Research Institute, Kabanyolo
NALIRRI  National Livestock Resources Research Institute
NARO  National Agricultural Research Organization
OFSP  Orange Flesheed Sweetpotato
RTB  CGIAR Research Program on Roots, Tubers and Bananas
SPV  Sweetpotato vines
UGX  Ugandan Shillings
I. Introduction

Sweetpotato is the third most important food crop after cassava and bananas in Uganda. Currently, sweet potato is number one food crop in the Lake Victoria region. The crop has potential benefits to poor farm households and urban consumers especially when other crops fail or in specific seasons before the main harvest.

Sweetpotato is a means to address one of the most serious health and nutrition problems of Uganda, Vitamin A deficiency which is a major risk factor for pregnant and lactating women. The Orange Fleshed Sweetpotato (OFSP) cultivars contain particularly high levels of carotenoids and are equaled only by carrot as a source of pro-vitamin A. Sweetpotato roots provide a source of carbohydrates, calcium, ascorbic acid (vitamin C). Sweetpotato roots may be eaten boiled, steamed or processed into simple products such as chips, bread, local brew/drink, juice, pancakes and composite flour (mixed with maize, millet and soya flour). In some communities, tender (young) sweetpotato leaves are consumed as a vegetable. Sweetpotato contributes about 20% of total crop residues provided by vines, non-commercial sweetpotato roots, peels which are very good source of livestock feed.

The objective of the workshop was to strengthen the capacity of project partners and extension service that will be involved in training target farmers in the framework of RTB-ENDURE.

II. Challenges to utilisation of sweetpotato residues as animal feed

Although sweetpotatoes are a good source of energy (roots) and protein (vines), they are highly perishable. As a result, a lot of vines are wasted during periods of peak harvests, yet farmers suffer from feed scarcity during the dry season. In order to make good use of sweetpotato residues (vines and roots) there is need to conserve them in form of silage which has the potential to mitigate seasonal feed shortages and help cope with seasonal feed prices fluctuations that many smallholder livestock farmers experience. It also provides opportunity to reduce waste in urban market and at household level as well as it can open up business opportunities for youth and women.

III. Structure of the workshop and participants

The workshop has been held at the Makerere University Agricultural Research Institute, Kabanyolo (MUARIK) on the 31st August and 1st September 2015. The workshop was organized by the International Potato Centre (CIP), International Livestock Research Institute (ILRI) and National Livestock Resources Research Institute (NALIRRI).

Thirty one participants (six women) attended the workshop. They comprised of district staff from Masaka and Kamuli districts, NaLIRRI technicians, CIP staff, MUZARDI, VEDCO, CHAIN-Uganda, media (The East African, New vision and Monitor papers). All participants had experience with working with sweetpotato crop. Three participants did not have any experience with working with sweetpotato silage.
IV. ToT workshop: Day 1

The opening prayer was conducted by one of the workshop participants. This was followed by participants’ self-introductions (name, institution/district and experience on sweetpotato as a food and animal feed).

**Participants’ expectations**

Participants were requested to write down at least two expectations from the workshop. Below is a summary of participants’ expectations.

- Knowledge and skills on how to prepare sweet potato silage using different techniques
- How to feed dry stalk of sweetpotato vines to livestock
- How to store silage
- Nutrition value of sweetpotato silage
- Cost-benefit analysis of sweetpotato silage as compared to commercial feeds
- How to feed pigs using sweetpotato silage in order then to train other farmers
- How to utilize sweetpotato vines in pig production by various methods
- Which varieties do well and their nutritive values
- How to rear pigs and marketing
- Expect to observe a nice sample of sweetpotato vine silage
- Advantages of feeding sweet potato silage to pigs
- How to use silage to feed other livestock and how it can be done from different sweetpotato varieties
- Networking with participants from other organizations.
PRESENTATIONS

1. Presentation by Mr. Peter Lule, ILRI

He welcomed participants and informed participants that the major objective of the workshop was to equip trainers of farmers with information and skills on sweetpotato silage making and utilization for pig production.

2. Presentation by Mrs. Sarah Mayanja, CIP

Mrs. Mayanja made a presentation on project objectives, activities and method of implementation:

- Objectives of the project
  - strengthen capacities on silage utilization with sweet potato
  - link farmers to markets
  - increase pig production and marketing
  - capacity building of farmers, TOTs, youth and students (MSc level)

- Among several technologies, silage making from sweetpotato was selected to be implemented in Masaka and Kamuli districts.

- Utilization of sweetpotato and other root and tuber crops’ residues for pig production can improve the livelihood of farmers.

Selected projects in RTB-ENDURE:

- Sweetpotato – CIP and ILRI are focusing on improved methods of making silage from sweetpotato vines and roots and to turn it into business.
- Potato – Improved storage for ware potatoes.
- Bananas – Extended shelf-life of banana and use of peels as a livestock feed.
- Cassava - Waxing of cassava roots or tubers as a method of preservation.

Sweetpotato project’s goal: To improve the utilization of sweetpotato residues (roots, vines and peels) to overcome feed constraint in pig production systems. This was also clearly illustrated using a business model on how to improve the livelihood of farmers by using sweetpotato

Approach: creation of a model for proper organisation of sweetpotato value chain actors for production, conservation, etc.

- To strengthen marketability of products
- Capacity building
- Sharing experiences with stakeholders in sweet potato and pig production value chains

Expected research outputs:

- Test and validate two methods for silage production
- Identify best-bet business models for silage making and marketing
Planned activities (2015-2016):
- Daily records of silage feeding on selected farms
- On-station and on-farm trials on silage production and utilization
- Capacity building need assessment with farmers
- Monitoring field activities
- Feedback workshops

Comments/questions from participants
- What is the current annual sweet potato production? (2.8 million metric tons)
- Why were Kamuli and Masaka districts chosen? (Kamuli has the highest level of poverty and Masaka is the highest producer of pigs and sweet potatoes)

3. Presentations by Dr. Jolly Kabirizi, NALIRRI

(a) Sweet potato for food and feed security and income generation
Uganda as being the leading producer of sweetpotato in Africa; and the crop is ranked 3rd in importance as compared to cassava and bananas respectively. Therefore, sweetpotato has a big role to play to improve the livelihood of farmers in Uganda.

*Importance of sweet potato*: food security, source of feed to livestock, income generation, among others.

*Constraints to production sweet potato*: pests and diseases, land scarcity, labour, lack of planting material, marketing, low price etc.

*Common sweet potato varieties*: Ejumula, Kakamega, VITA, Kabode, Orange Fleshed Sweetpotatoes.

*Crop management*: soil requirements, land preparation, selection of good planting material, pest and disease management as well as planting.

(b) Sweet potato residues as animal feeds

Competition for cereal grains between livestock and humans due to increasing population growth and change in weather patterns and thus need for alternative source of human food and livestock feeds.

*Roles of sweet potato as feed:*
- Source of feed for livestock production systems,
- Good source of energy and can be used to formulate calf rations (use of dried vines, maize bran, fish meal, minerals) to reduce on feeding costs while rearing calves.

*Challenge to use sweet potato residues as feed:*
- Anti-nutritional factors
- Conservation methods to cope up with feed shortage

*Importance sweet potato silage:*
- Negative environmental impacts are reduced, feeding value improved, inexpensive livestock feed developed, among others.
Silage making using different methods

Types of silos used to make silage:

- **Stack silo**: estimated cost of UGX 274 per kg of silage (if producing 500kg)
- **Trench silo** (in a pit): estimated cost of UGX 394 per kg of silage (if producing 500kg)
- **Plastic bag or tube silo** (use of plastic sheet as a bag to compact the material): estimated cost of UGX 204 per kg of silage (if producing 500kg)
- **Improved tube method** (use of a drum and drainage pipe and it involving a number of steps for constructing the required equipment, i.e. making internal drainage system, sealing at the bottom of silage tube, compaction by use of a drum, etc.): estimated cost of UGX 214 per kg of silage (if producing 250kg).

Comments/questions from participants

- Which varieties of sweet potato are suitable for central region?
  - Performance of different varieties varies from one region to another, for example, “Kavunza”, “Timba” (for forage), among others does better in Masaka. However, the orange type is preferred less because it is soft when cooked with a lot of starch, but with high protein content. The softness is related to high protein content.
  - There was further clarification that “Ejumula” and other varieties are not Genetically Modified Organisms (GMOs) but selected naturally through cross breeding.
- How do we plant (spacing) the different varieties?
  - Make the spacing as close as possible for rapid production of vines
  - For roots at least 30cm from one vine to another while planting
  - “Timber” variety can be planted in banana plantation.
- What is the average size of the mound or ridges?
  - A mound should be 100cm wide and 60cm high
  - A ridge 0.5m from each other. But tubers can easily be affected by rats. However, these can be controlled by “Tephlosia” (natural control).
- Is it possible to intercrop sweet potato with other crops?
  - Preferred crop is mainly beans.
  - In rapid multiplication of vines, intercropping is not applicable.
- Does silage made from ensiling diseased sweet potato affect livestock?
  - No.
- Does cooking sweet potato tubers or residues increase digestibility in pigs?
  - Yes, but to reduce on the costs of pig production, drying the material is recommended.
- One participant suggested the use of weeds during weeding the crop to be put on top of the mounds or ridges to avoid cracks during the dry season and this helps to control the sweet potato pests (weevils).

4. Presentation by James Ojakol, Makerere MSc fellow

The general objective of the study is to improve pig production in Uganda through use of sweetpotato silage as a low cost high quality feed.
The specific objectives of the study are:

- Determine quality of sweetpotato silage prepared using maize bran or cassava flour as additives.
- Determine nutrient digestibility of sweetpotato silage using growing pigs.
- Determine feed consumption, live weight gain and feed conversion of growing pigs fed on sweetpotato silage.

Questions/issues arising from the presentation

- How will this experiment help farmers?
  - Utilization of sweetpotato crop residues by making silage
  - Analysis will help us to know the nutritive quality of different silage types
- What is a basal diet?
  - A major feed for livestock.
- Why different proportions of Lablab and Gliricidia?
  - To determine the one with good crude protein.
- How will you manage pig stress during experimental period?
  - Improve by supplementation
  - Control of diseases and de-worming
  - Avoid heat stress by provision of water bath
- Why did you select Lablab and Gliricidia instead of other leguminous forages such as Mucuna?
  - Lablab is an herbaceous forage legume, drought tolerant, produces high biomass yield and easy to manage.
  - Gliricidia is a fodder tree which can be propagated from cuttings and can be used as a live fence. It is easy to establish and manage.
- Why is it that piglets under the age of 3 months will not be included in the feeding trials?
  - According to the literature their performance is poor with silage.
- What breeds are to be used in experiment?
  - Camborough breed
- What is the cheapest raw material to make silage?
  - Any material can make silage

Lessons learnt and new expectations

Participants were requested to list down key lessons learned and new experiences from the workshop:

- The cost effectiveness of silage as a feed compared to commercial feeds
- Need for more practical sessions on silage making
- Learnt how to utilize silage during the dry season (during feed scarcity)
- Learnt how to use fertilizers and control pests
- This is an integrated project which involves women, men and youth
- Learnt that lablab is not good to be planted in a banana plantation and to be fed while milking animals. It causes off-flavour in milk.
• What next if sweetpotato silage is not suitable to younger piglets of less than 3 months?
• What is the feed conversion ratio (FCR) while feeding sweet potato silage? (yet to be done)
• How much sweetpotato silage to be used while feeding livestock
• Is it possible to use sweetpotato silage as a basal diet?

Key lesson:
Dr. Kabirizi advised participants to “Walk the Talk” or be role models in the community if they have to make an impact on the rural community.

GROUP EXERCISE
Participants formed three groups and discussed advantages, challenges and suggestions for improvement of different types of silos

Group 1 members
1. Nkuutu Euraphani
2. Matovu Joseph
3. Mabuya Julius
4. Aryatuyamba Charles
5. Ssekiwunga Julius
6. Mudhesi Paul
7. Namagembe Agnes
8. Ssekabunga Nicholas

<table>
<thead>
<tr>
<th>Type of silo</th>
<th>Advantages</th>
<th>Challenges</th>
<th>Suggestions for improvement</th>
</tr>
</thead>
</table>
| Stack silo   | • Large volumes of silage can be made  
               • No constructions needed, hence making it cheap | • Compaction may be challenging  
               • Not suitable for small scale farmers.  
               • Possibility of run- off water into silage | • Control running water by putting drainage channels  
               • Control termites around |
| Trench silo  | • It is a permanent silo  
               • Considerable amount of silage is stored  
               • Can be used by all farmers (small or large scale) | • May be costly in terms of digging the trench, compaction  
               • Drainage problems | • Put a shade |
| Tube silo    | • Cheapest method (affordable by small scale farmers)  
               • Portable (can be moved)  
               • Easy to compact | • Rats/rodents attack if not well stored  
               • Only suitable to small scale farmers.  
               • Drainage may be a challenge | • Use appropriate gauge |
<table>
<thead>
<tr>
<th>Type of silo</th>
<th>Advantages</th>
<th>Challenges</th>
<th>Suggestions for improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved tube silo</td>
<td>• Increased attempt to ensure drainage of affluent</td>
<td>• Cost is quite high</td>
<td>• Improve on the drainage system</td>
</tr>
<tr>
<td></td>
<td>• Compaction is much better due to dram walls</td>
<td>• During compaction, sharp edges of the drum may tear the drum.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Drainage is not thorough</td>
<td></td>
</tr>
<tr>
<td>Stack silo</td>
<td>• Less labor</td>
<td>• Requires large quantities</td>
<td>• Slanting the bottom</td>
</tr>
<tr>
<td></td>
<td>• Machinery can be used</td>
<td>• Silage easily destroyed by running water</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Prone to rodents and mould</td>
<td></td>
</tr>
<tr>
<td>Trench silo</td>
<td>• Stored in bulk</td>
<td>• Costly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Durable</td>
<td>• Labor intensive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cheap</td>
<td>• Easily destroyed by rain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Can be fed to many animals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tube silo</td>
<td>• Suitable for small scale farmers</td>
<td>• Only for small quantities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cheap to make</td>
<td>• Requires more materials to make large quantities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Can enable making many small quantities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Less chances of spoilage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Can be fed at once</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved tube silo</td>
<td>• Durable</td>
<td>• Expensive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduced chances of spoilage when opened</td>
<td>• Small quantities are prepared at a time</td>
<td></td>
</tr>
</tbody>
</table>
Group 3 members

1. Sserwadda Joseph
2. Isabirye Robert
3. Sserwanja Livingstone
4. Nadiope Gideon
5. Richard Lumu
6. Tomusange Obadiah
7. Kirumira James Dick

<table>
<thead>
<tr>
<th>Type of silo</th>
<th>Advantages</th>
<th>Challenges</th>
<th>Suggestions for improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stack silo</td>
<td>• Cheapest</td>
<td>• Prone to damage (rodents/children).</td>
<td>• Fence the stack silo</td>
</tr>
<tr>
<td></td>
<td>• Easy to adopt</td>
<td>• Needs thorough compaction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Less labor during compaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trench silo</td>
<td>• Strong pit walls</td>
<td>• Need well drained land</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gives good compaction</td>
<td>• Need roofing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Labor intensive</td>
<td></td>
</tr>
<tr>
<td>Tube silo</td>
<td>• Cheaper and affordable</td>
<td>• Easily invaded by rodents and children</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No wastage during feeding</td>
<td>• Continuous buying of polythene tube</td>
<td></td>
</tr>
<tr>
<td>Improved tube silo</td>
<td>• Gives maximum protection during compaction</td>
<td>• Easily damaged by rodents</td>
<td></td>
</tr>
</tbody>
</table>

V. ToT workshop: Day 2

RECAP OF DAY 1

The day was opened with a prayer from Mr Joseph Sserwadda. Mr. Ssekabunga Nicholas and Ms. Namagembe Agnes were requested to take minutes during the workshop.

Mr. Kigongo John presented a recap for day one:

✓ He summarized the presentation on Mrs. Mayanja, Dr. Kabirizi and Mr James Okajol.
✓ He emphasized that the content of the presentations were in line with the participants expectation.

Comments/questions on recap

Participants were asked to mention at least one important thing they learnt the previous day.

- Storage of silage
- Storage of sweetpotatoes,
• Different methods of making silage e.g. the improved tube silo, tube silo, stack silo and the trench silo.

• The need to be role models “walk the talk” if we have to make impact on the rural community. Mr. Lule stressed the need for each participant to set-up a model farm.

VISIT TO THE LABORATORY

• Participants visited the laboratory where a trial on silage production and utilization is being conducted by Mr Ojakol James Francis, an MSc student whose research is funded by RTB-ENDURE.
  ✓ He showed the participants micro silos.
  ✓ It was observed that there was no affluent in the micro silos because he wilted the vines before the use and did not use molasses.

• There were some lessons learnt from the macro silos:
  ✓ Wilting sweetpotato vines (SPV) reduced the amount of affluent.
  ✓ Forages should be harvested at a early stage when the protein content is still high.
  ✓ Chopping fasten the wilting.

Questions/comments from participants

• How do you grow lablab?
  ✓ Dr. Kabirizi informed participants that lablab is planted at a spacing of 1m x 1m. Lablab grows very fast, it is therefore important to manage it well if you want to intercrop it in a banana plantation. It has a tendency to smoother companion crop.
  ✓ Mucuna, a forage legume is good as a cover crop and animal feed but it has high fiber content compared to lablab.
  ✓ She also informed participants that one acre of elephant grass and one acre of Brachiaria mulato can sustain a mature cow for a whole year but Brachiaria should be inter-planted with a legume to balance the protein content.

Dr. Diego Naziri, the leader of the RTB-ENDURE project informed participants that the sweetpotato project is one of the 4 sub-projects. He highlighted activities and expected outputs from the project. He requested participants to disseminate the information/knowledge and skills gained from the workshop to the end-users.

PRACTICAL SESSION ON SILAGE MAKING

The participants attended a practical session on silage making. They were introduced to a motorized forage chopper. They were advised to use other manual choppers in case of small scale operations since they are cheaper and can be used on the smallholder farm.

The wilted SPV were chopped and mixed with diluted molasses at a ratio of 1:2 (molasses:water) and ensiled in a polythene tube that was already prepared with a drainage
pipe and put in the drum. The ratio of chopped SPV to diluted molasses is 10 kg to 1 liter. It was noted that it took less than 1 hour to chop about 45 kg of SPV and the product was better than the manually chopped SPV. The smaller the material, the higher the intake by the animal which translates into better animal performance.

Preparing sweetpotato vines before chopping them

Preparing the forage chopper
Sweetpotato vines chopped using a forage chopper

Sweetpotato vines chopped using a forage chopper and using a panga
VI. Workshop evaluation

- Practical lesson worked well
- Useful practical training
- Need to train farmers
- The improved tube method of making silage presents a number of issues raised by the participants
  - Too labor intensive and not friendly to women
  - Technology is very expensive and not easily taken by farmers
  - Time consuming
  - Requires labor and the need to control rodents
  - Substitution of molasses with cassava flour.
  - Replace the pipe with a mineral water bottle
  - Metallic drum is dangerous to both the operator and the polythene bag
  - Not gender sensitive-
  - Replace metallic drum with PVC drum
  - The Project leader made a number of proposals to improve the methods that will be discussed with Dr. Lukuyu (ILRI)

Way forward
Farmer trainings in Masaka and Kamuli will be conducted at the end of the month.

Acknowledgements
I acknowledge financial and technical support from CIP, ILRI and NaLIRRI, I thank Mr. Kigongo, Dr. Nicholas Ssekabunga, Ms. Agnes Namagembe for taking minutes of the workshop.
# ANNEXES

## ANNEX 1. WORKSHOP PROGRAM

### DAY 1: Date: 31st August 2015

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Responsible person</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00-8.30am</td>
<td>• Registration</td>
<td>Ms. Agnes Namagembe, NaLIRRI</td>
</tr>
<tr>
<td>8.30-9.00am</td>
<td>• Opening prayer&lt;br&gt;• Self-introduction (name, institution/district and experience on sweetpotatoes as a food and fodder crop).&lt;br&gt;• Select a rapporteur for Day 1</td>
<td>Participants</td>
</tr>
<tr>
<td>9.00-9.20am</td>
<td>• Participants expectations (Use flip chart)</td>
<td>Dr. Jolly Kabirizi, NaLIRRI</td>
</tr>
<tr>
<td>9.20-9.45am</td>
<td>• Presentation on “CIP-RTB project”</td>
<td>Mr. Gerald Kyalo, CIP</td>
</tr>
<tr>
<td>9.45-10.10am</td>
<td>• Importance of sweetpotatoes in a farming system</td>
<td>Dr. Jolly Kabirizi, NaLIRRI</td>
</tr>
<tr>
<td>10.10-10.40am</td>
<td>Questions/Discussion</td>
<td>Dr. Jolly Kabirizi, NaLIRRI</td>
</tr>
<tr>
<td>10.40-11.10am</td>
<td>Sweetpotato production and management&lt;br&gt;Environmental requirements (soils, rainfall, altitude--)&lt;br&gt;Land preparation&lt;br&gt;Selection of planting materials&lt;br&gt;Planting time and methods&lt;br&gt;Fertilizer application&lt;br&gt;Weeding/management&lt;br&gt;Pest and disease control&lt;br&gt;Harvesting&lt;br&gt;Post-harvest handling</td>
<td>MAURIK</td>
</tr>
<tr>
<td>11.10 am- 12.30pm</td>
<td>Sweet potato (SP) as animal feed&lt;br&gt;Challenges to use of SP residues as animal feed&lt;br&gt;Advantages of SP silage&lt;br&gt;Silage making: types of silos&lt;br&gt;Improved tube method for making SP silage&lt;br&gt;Group exercise: Advantages and disadvantages if the different silage making methods</td>
<td>Dr. Jolly Kabirizi, NaLIRRI</td>
</tr>
<tr>
<td>12.30-1.00pm</td>
<td>Questions/Discussion</td>
<td>MAURIK</td>
</tr>
<tr>
<td>1.00-2.00pm</td>
<td>LUNCH</td>
<td>MAURIK</td>
</tr>
<tr>
<td>2.00-3.30pm</td>
<td>• Sweet potato (SP) as animal feed&lt;br&gt;Challenges to use of SP residues as animal feed&lt;br&gt;Advantages of SP silage&lt;br&gt;Silage making: types of silos&lt;br&gt;Improved tube method for making SP silage</td>
<td>Dr. Jolly Kabirizi, NaLIRRI</td>
</tr>
<tr>
<td>3.30-4.00pm</td>
<td>Discussion and way forward</td>
<td>MAURIK</td>
</tr>
</tbody>
</table>

### DAY 2: Date: 1st September 2015

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Responsible person</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00-8.20am</td>
<td>• Registration</td>
<td>Ms. Agnes Namagembe, NaLIRRI</td>
</tr>
<tr>
<td>8.20-9.20am</td>
<td>• Prayer&lt;br&gt;• Recap for Day 1</td>
<td>Rapporteur</td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
<td>Location</td>
</tr>
<tr>
<td>--------------</td>
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<tr>
<td>9.20-10.30am</td>
<td>Select a rapporteur for day 2</td>
<td></td>
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<tr>
<td></td>
<td>Visit MSc laboratory research activities on sweetpotato</td>
<td>Mr. Ojakol James, MSc student, MAURIK</td>
</tr>
<tr>
<td>10.30-11.00am</td>
<td>BREAK TEA</td>
<td>MAURIK</td>
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<tr>
<td>11.00am-11.20am</td>
<td>Comments/Discussion on laboratory research work</td>
<td>Participants</td>
</tr>
<tr>
<td>11.20 am-12.20pm</td>
<td>Practicals on silage making</td>
<td>Mr. Kigongo John, Mr. Ojakol, Ms. Agnes Namagembe, technician, NaLIRRI</td>
</tr>
<tr>
<td>12.20-1.00pm</td>
<td>Discussion, workshop evaluation</td>
<td>Participants</td>
</tr>
<tr>
<td>1.00-1.10pm</td>
<td>Closing ceremony</td>
<td></td>
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<tr>
<td>1.10-2.00pm</td>
<td>LUNCH and departure</td>
<td>MAURIK</td>
</tr>
</tbody>
</table>
### ANNEX 2. LIST OF PARTICIPANTS

<table>
<thead>
<tr>
<th>Name</th>
<th>District/Affiliation</th>
<th>Telephone number</th>
<th>E-mail address</th>
</tr>
</thead>
<tbody>
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