

**Proceeding for the Launch of On-Farm Seed Potato Storage Project, Ol-Jororok  
Agricultural Training Centre Nyandarua, 6<sup>th</sup> July 2011**



Participants during the launch

**Agriculture Secretary Ministry of Agriculture Dr. William Songa Speech, during  
the launch of project 6<sup>th</sup> July 2011 at Oljororok ATC**

**Salutations:**

- **Distinguished Guest**
- **Participants**
- 

**Ladies and Gentlemen:**

I am pleased to be associated with the potato industry fraternity in this auspicious occasion for the launch of the research project, *‘On-farm evaluation and promotion of low-cost seed potato storage technologies in Nyandarua County.*

In Kenya potato second most important food crop after maize. The crop is an important cash and food crop in not only Kenya but also in Sub-Saharan Africa (SSA) and improvement of its production system can be a pathway out of poverty. This is attributed to the facts that:

Potato has a short cropping cycle (3-4 months) and a high production per unit area and time, making it the smallholder commercial crop of the future for the potato growing areas, with a high potential to raising livelihoods

Increased potato productivity will play a buffer role to increasing food prices and will enhance food security and household incomes. Furthermore potatoes can provide a cheap but nutritionally rich staple food required for our rural folks, providing them with protein, vitamin C, zinc and iron to their diets.

in SSA, a 250% increase in demand for potatoes between 1993 and 2020 is projected, with an annual growth in demand of 3.1%. This necessitate for increased area under production and timely availability of good quality seed potato.

### **Ladies and Gentlemen:**

There are approximately 800,000 growers in the country, cultivating 158,000 hectares, with an approximate production volume of over 1 million tonnes in two growing seasons. The annual production of the crop is worth approximately KSh. 5 billion at farm gate prices and more than KSh 10 billion at consumer prices. The industry **indirectly employs over 2.5 million** as market agents, transporters, processors, vendors, retailers and exporters. Being labour-intensive, the crop provides needed employment to women and young people at the farm level. On average, yields have been stagnating at less than 10 tonnes per hectare, though acreage under production has been in an upward trend over the last 10 years (MoA, 2005).

The acreage under potato has been increasing over the last 10 years but on average, yield have been stagnating at less than 10 metric tonnes per hectare against a potential of 30-40 metric tonnes per hectare that is achieved by progressive farmers and the research stations. This has been due to various challenges facing the potato farmers associated with quality of the available planting materials.

### **Ladies and Gentlemen:**

Approximately 60,000 metric tonnes of good quality seed potato is required to support the production of ware potatoes annually. The ware potato farmers who constitute approximately 95.6% of the country's total seed demand usually use their own farm-saved seed. The Government and development partners have been putting efforts to improve the quality and accessibility of the certified seed potato tuber requires being stored in a way that it retains its vigour and healthy, disease-free condition up to the time of planting. Although this may be done in costly refrigerated storage, small-scale farmers, farmers' associations and even larger private companies require inexpensive methods of storage.

**Ladies and Gentlemen:**

Recent climate change has not made matters any better for potato farmers due to drastic reduction in rainfall in most potato growing areas. Areas originally suitable for seed production are no longer so due to high temperatures, poor rainfall and increasing level of diseases and pests. This necessitates the importance of potato pre-sprouting (Chitting) prior to planting season so as to adequately utilise the little and erratic rains accessioned by the climate change.

The chemical “Rindite” was previously used for pre-sprouting of freshly harvested seed potatoes. This chemical though effective is no longer available for use due to environmental safety reasons prompting the use of un-sprouted seeds by most growers. No reliable alternative is yet available except for prolonged storage (5-7 months) using diffused light conditions at ambient temperatures and natural ventilation.

The introduction of affordable storage technologies such as Diffused Light Stores (DLS) becomes more crucial as an alternative for promotion as we embark on the efforts to increase the potato production. The advantage of Diffused Light Stores (DLS) as a technique is that it assists in sprouting of potatoes and lessens pest and disease infestation.

**Ladies and Gentlemen:**

Increased use of improved seed storage is expected to contribute towards solving the chronic shortage of quality seed and increase potato productivity to reduce food insecurity and increase household incomes, whose effect will go far beyond the project period. It will also contribute to information needed to amend and implement policies for streamlining the seed availability and distribution as stipulated in Seed Potato Master Plan (2009).

**Ladies and Gentlemen:**

There is no evidence to show that farmers pre-sprout their seeds to the level required for sustained potato production in growing areas. Also we need to identify the reasons for non adoption and diffusion of improved seed potato post harvest storage practices.

This project would not have come at a better time to gather information on current practices being done by our farmers, adaptability of the new techniques and promotion of suitable technologies for use by our farmers. The results will be used to raise farmers’ awareness on the benefits of DLS to increase its utilization. Moreover, if seed potato farmers (multipliers) use improved stores they will get much higher incomes from the sale of the value added seed potato.

Through this project other technologies to be promoted will include:

- Use of Good quality seed including minitubers
- Improved varieties e.g. newly released Kenya Gold for processing into crisps
- Farm practices for production of good quality seed potato.
- Other alternative improved storage practices.

In conclusion, state-

The Ministry is a participant in the project and so I would urge our extension staff to support and participate in the evaluation and dissemination of results so as to achieve the expected outputs.

I will also appreciate collaboration from industry stakeholders and development partners in an effort to develop and promote the industry.

**Finally:**

- **Commend team for hosting this event and**
- **Appreciate** National Council for Science and Technology for the project sponsorship.
- With these remarks it is my pleasure to declare this project, **OFFICILLY** launched.



Dr. Irungu Director of Horticulture MoA, giving official opening speech

Morning of July 6<sup>th</sup> 2011 (1<sup>st</sup> session)

Comments

**Glady's Maingi**

The job of GIZ-PSDA is allowing private sector to grow with farmers being the biggest segment of the private sector. The problem of immature potatoes which cannot be stored and poor yields in Nyandarua are major limitations. Potato is a main crop but farmers are using the wrong seed, harvesting at the wrong time and packing in the wrong bag (extended). There are so many issues in Nyandarua and they discourage the implementation of the 110kg bag since other areas cannot do it if Nyandarua is not doing it and yet they are a major producer. This is the first task for NPCK to focus on.

Farmers also don't have a unified voice to articulate their concerns and thus something for the council to focus on. A challenge was posed to research to produce varieties that will grow in drier, non traditional areas. An appeal to support KENAPOFA and NPCK as drivers of the industry was emphasized.

**Prof Nderitu (Mutunga sent his apologies) as part of NPCK**

Self-regulating industry with policies that are for the betterment of the industry is essential to increase potato productivity. There is a need to push for a stand on itself potato policy. All the stakeholders should see themselves as part of the industry and should work together for the good of the industry. Right now the different stakeholders play the blame game so that nothing gets done and nothing changes. A survey on corruption along the value chain and what is lost from corruption is more than what goes to farmers. Over KES 10 billion go to the police as bribery and a lot more to the market players who do not give receipts. A NPCK will ensure that actors along the chain get the return for their investment so that the whole chain is efficient.

**NCST -Steven Karimi (NCST, [www.ncst.go.ke](http://www.ncst.go.ke))**

Stakeholders should dedicate days to crops especially those crops that are really important. Food shortage in this country is usually gauged based on availability of maize or grains. Potatoes never feature in this and yet there are so many other crops besides maize. This is also true of animal feeds which focus on grains. There is a need to diversify to other food like potato. Council wants to emphasis importance of other crops including those that we have abandoned like millet, cassava etc. Potato grows in a wide range of ecological areas but we need varieties that grow in the drier, non traditional areas. Population is exploding and we need to think and invest in the area of food production so as to strategically meet this need. Need to shift farmers thinking and perspective on to crops that will give a return instead of those they automatically grow that do not necessarily produce or give much of a return. We need technologies to eliminate some of the challenges facing potato so that we can increase production. We may not solve all the problems but we can increase productivity. We can increase number of farmers growing the potato as well as the productivity of those growing. Can we fortify potato? What does it lack that we can use developed technology to improve. Potato production cycle is short and so can get food quicker than with maize. There is need to diversify products from potato so that not just for the limited uses currently is use. NCST also has other activities like PhD proposals, initiatives to link research results with the industry etc.



Dr. Stephen Karimi, NCST-Chief Science Secretary making a remark

### **Wachira Kaguongo (NPCK)**

He thanked ATC and especially pleased that they are growing certified seeds. Thanks to the project implementers, presenters and commentators. Fortification is a key since many nutritionists will point out the deficiencies of potato. NSCT overview was good as now know what is available and will be knocking on their door for APA conference that is planned in 2 years time and which will require support. Mr. Kaguongo stated that NPCK which was officially launched on 25<sup>TH</sup> November 2009 will play a strategic position in the industry through:

1. Changing the dying industry to vibrant one
2. Agitate for reinforcements of legal notices No.144 (2005), 113(2008-adaptive)
3. Liaising with the regional forum in setting up EAS thus revitalising the industry
4. The council will act as a potato coordinating units by creating a central database on all issues pertaining to the industry.
5. Role of partners in increasing seed volumes (6, Aeroponics units)
6. Enhance seed distribution and agitate for its decentralised production
7. Strengthen value chain actors to be mutually beneficial to each other

### **C. MoA HQ Marion Gathumbi**

She stated that the MoA in recent years has promoted the development of the industry through funding to improve on seed quality production and availability through assistance as follows:

1. In 2005 intervention the ministry enhanced seed production capacity by injection KSH 40 million in certified seed production by ADC. Six Agricultural Training Centres was put under seed multiplication through the same assistance.
2. MoA give money to KES 12.5 to KARI to enhance basic seed production
3. Trained staff on agribusiness aspects to increase service delivery to farmers

4. MoA is trying to organise potato marketing by reinforcing the legal Notices (114 and 113).
5. The ministry is in the process of compiling Seed Potato Directory to direct ware potato farmers to where seed potato of different varieties are found and at what price.

Comments

- Dr. Kabira remarks question posed by Gladys Maingi on research on heat tolerance varieties was that 45 clones from CIP and 10 clones from NCSI were under evaluation at KARI Tigoni. He emphasised that lack of funds and breeders rights are some of the embedment to release of the new varieties with good Processing qualities. He said KARI should be doing actual breeding, but out of desperation we are sourcing the processing clones from NCSI, India.



Dr. J.N. Kabira-Centre Director KARI Tigoni addressing participants.

- In response, Dr. Karimi said that NCST has regulatory programme contacts to foreign affairs and it can do the groundwork for KARI to access to new clones. KARI should consult them for proper networking with other relevant institution
- Question on the role of KENAPOFA in potato industry was asked. In response, its National chairman Mr. Njogu said they are working with KENFAP to set up collection centres to handle ware potato before selling. It was noted that these centres will not work without proper ware storage structures and that the project output will be identifying suitable and affordable structures for the purpose.
- The meeting wanted to know what specific roles NPCK will play in streamlining potato industry. The CEO (Mr. Wachira) said NPCK is preparing a policy on the same. NCST representative Dr. Karimi informed the meeting that the Council will support document on priority areas with comprehensive collaboration. The

meeting resolve that NPCK should review already available documents i.e. potato policy, seed master plan, task force report and come up with a working document for proposal writing for funding. Potato council to lead the role of advocating for implementation already existing policies.

Dr. Hamisi Research Director-MKU highlighted the role of the institution as leading private tertiary education in the country. MKU played a leading role in giving qualified students locked out of education a chance to further their education. The institute participation in participatory research for a better trickle down effect in endeavour to better the livelihood of Kenyans. The institute give scholarship to student on merit and has funded 15 MSc. Students. It also funded undergraduate student developing home security system and hopes that the institute gets more collaborative projects in further.

**Group discussions: project activities by objectives**

**Group 1: Promising on-farm seed storage technologies identified.**

**Task:**

1. To develop the data collection instruments to capture the relevant information to act as baseline and inform objectives 2 and 3 activities.
2. Give the questionnaire to stakeholders the questionnaire to amend before administering
3. Due to budget limitation implications the DAO we suppose to participate in data collection.
4. The report of the socio-economics is expected before September to enables the implementers of objectives 2 and 3 plan their activities
5. The group suggested that one location will be identified for sampling from the 7 districts of Nyandarua County.

**Table 1: Identified location by Group 1**

<b>District</b>	<b>Location identified</b>
Marangine	Ndondori
Kipipiri	Geta
Nyandarua North	Shamata
Nyandarua West	Ngano
Kinangop	Njabini
Nyandarua South	Engineer
Nyandarua Central	Tumaini

**Group 2 and 3: Tackled objectives 2 and 3**

**Objective 2:** Evaluate seed storability potential of major potato cultivars under different storage practices

**Objective 3:** Evaluate field performance of major cultivars from different storage practices and periods.

**Table 2 Identified location by Group 2 and 3**

District	Location identified
Marangine	Tumaine
Kipipiri	Geta
Nyandarua North	Shamata
Nyandarua West	Silibwet
Kinangop	Njabini
Nyandarua South	Engineer
Nyandarua Central	Mawingo

- The group suggested that 2-3 replicates be done per site
- Using the existing type of stores (DLS and dark store)
- Varieties grown and store: to be identified by objective I group

**Other issues discussed:**

- The farmers should be willing to support the project to completion
- The experiment produce should be disposed either leaving all to farmer or the farmer releases quantity of seed equivalent to what was given at planting.
- Data collection to be done by a responsible person (farmer) with guidance/supervision of agricultural extension officer concerned.
- Any financial support towards data collection to be forwarded to respective DAO.
- The timelines for the start and end of these activities were **October 2011** and **August 2013** respectively.

**Group 4:** To promote adoption of promising on-farm storage technologies

The group proposed that already existing seed growers groups be identified and used the stores for promotion. Four groups and 2 ATCs in the county were identified as promotion sites in the district. This objective will be implemented starting at 2<sup>nd</sup> season of year one through to year 3.

**Group 5:** to package information on-farm storage techniques and practices to all the facilitators

**Questions discussed**

**1. What information**

- Seed Technologies with the farmers
- Cost benefit-cost effectiveness and usability of these technologies
- Promising new varieties' storability
- Importance of storability (shelf life and loss of value performance)
- Report sharing
- Lesson learned (researchers)

**2. For whom to package the information**

- Seed growers

- Traders
- Researchers
- Extension workers

### 3. How to package the information

- Demonstration, field visits
- Brochures
- Media and electronics
- NCPK Website
- Stakeholders forums
- Mobile based information system

### 4. When to package the information

- Technical seed storage demonstration (1<sup>st</sup> and 2<sup>nd</sup> seasons)
- Papers in local conference proceeding (2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup> seasons)
- Publication (paper in referred journal (6<sup>th</sup> season)
- Brochures, leaflets, technical notes (3<sup>rd</sup> and 6<sup>th</sup> season)

### List of participants

OL JORO OROK AGRICULTURAL TRAINING CENTRE								
LIST OF ATTENDANCE		DATE 01/11/2011						
TYPE OF TRAINING/MEETING		N/A		SPONSOR		ORGANISER		
COURSE/MEETING TITLE		SUGAR		SUGAR		SUGAR		
NO	NAME	SEX		ORGANISATION	DISTRICT	DESIGNATION	CONTACT	SIGNATURE
		M	F					
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6	RENE K. MATHINGI	✓		D.A.C.E	Mt. Kenya	EXTENSION	0725907280	[Signature]
7	Charles K. Kungu	✓		KENAPFA	Mt. Kenya	EXTENSION	072092622	[Signature]
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17	Jackson Mwangi	✓		SUGAR	Mt. Kenya	DAO	071721099	[Signature]
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23	Wathinya Kungu	✓		MOA	Mt. Kenya	DAO	072231022	[Signature]
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27	T.C. NFAWGA	✓		OLJOKA AIC	Mwandama W	FARM MANAGER	0723607470	<i>[Signature]</i>
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29	Peter Wanjira	✓		OLJOKA AIC	Mwandama W	D/Director	0721329920	<i>[Signature]</i>
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31	Zachary Njoroge	✓		OLJOKA AIC	Mwandama W	AGRONOMIST	0722283620	<i>[Signature]</i>
32	Joseph Njoroge	✓		AGRO SOLUTIONS	Mwandama W	AGRONOMIST	0721329920	<i>[Signature]</i>
33	Pamela Ithouru	✓		FARMER GROUP	Mwandama W	AGRONOMIST	0733531523	<i>[Signature]</i>
34	Linda Mwangi	✓		KARI-TIGONI	Mwandama W	AGRONOMIST	0721872320	<i>[Signature]</i>
35	Wanjira Gaxio	✓		NIV/STC	Mwandama W	REPORTER	0720592496	<i>[Signature]</i>
36	Margaret Ngugi	✓		OLJOKA	Mwandama W	AGRI-BUSINESS	0722-221462	<i>[Signature]</i>
37	Imity N. Ojoo	✓		OLJOKA	Mwandama W	AGRI-BUSINESS	0722-558300	<i>[Signature]</i>
38	Rosemary Gichuhi	✓		JUNGA AFTA	Mwandama W	FARMER	0735763645	<i>[Signature]</i>
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42	FREDRICK W. GITHI	✓		MOA	Mwandama W	AGRI	0720544379	<i>[Signature]</i>
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**MINISTRY OF AGRICULTURE**  
**OL JORO OROK AGRICULTURAL TRAINING CENTRE**  
**MEALS REGISTER**  
 TYPE OF TRAINING/MEETING: NAC

SPONSOR: KARI-TIGONI ORGANIZER: KARI-TIGONI

DATE: 6/7/2011 TIME:                      MEAL:                     

S/No	NAME	ORGANISATION	CONTACT	P/No OR ID No	SIGNATURE
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