THE POTATO MAGAZINE KENYA

Issue No. 4 2019

NATIONAL AND REGIONAL POTATO EVENTS

DEVELOPING SMALLHOLDER VALUE CHAINS – KENYA

THE CROPS (IRISH POTATO) REGULATIONS, 2019

TRANSFORMATION IN ELGEYO MARAKWET

• A JACKPOT OF POTATOES
• NEW PARTNERSHIP CREATES JOB OPPORTUNITIES FOR YOUTHS
• SEED STORAGE PROJECT TO IMPROVE FARMERS YIELD

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CEO’s NOTE

The Potato Sector in Kenya has come of age and I am encouraged to see it progressively taking its rightful place in the social-economic development of the Country. Potato is one of the focus crops in the Food Security Pillar of the Big 4 Agenda and as the country grows beyond potato consumption as a food crop, it is poised to play a major role in supporting the Manufacturing Pillar as a raw material in Industrial Use.

This year, we witnessed the successful enactment of the 2019 Potato Regulations which was officially launched during our annual National Potato Conference and Fair. The regulation provides an opportunity to build a strong value-chain that will bring together players at different levels, reduce risks and increase the returns to all actors in the entire value chain. This is a huge milestone in the sector achieved through collaborative efforts by all potato stakeholders and we should be proud of our tireless efforts. As we move forward, I call upon all actors to come together and support its successful implementation.

The 2019 Potato Magazine, remaining true to its mandate, carries in it valuable information about the sector. The journey of having the 2019 Potato regulations in place, its launch as well as the value chain opportunities that it creates have been well elaborated. It has also highlighted the work being carried out by private and public institutions in promoting best practices for quality standards, improved yields and enhanced value addition in the potato value chain.

We specifically pass our gratitude to the GIZ-German development cooperation, National Research Fund (NRF) and International Fertilizer Development Centre (IFDC) for supporting the development and distribution of this magazine.

I am looking forward to making 2020 the year we revolutionize the potato value chain in Kenya and create a template for the rest of Africa.

Enjoy the read, Asante!

Wachira Kaguongo
Chief Executive Officer
The agriculture sector is set to benefit from a budgetary increase from Ksh 45 billion in the 2018/2019 financial year to Ksh 52 billion in the 2019/2020 financial year. This represents 2.9% of the total budget of Ksh 3.2 trillion, for a sector that contributes an estimated 25% of Kenya’s GDP. This budget will go to implement one of the Big 4 Agenda Pillars that focuses on food security and nutrition. However, this allocation falls below the Malabo declaration threshold, in which African heads of states, including Kenya ratified an agreement to commit at least 10% of the total budget to agriculture in order to achieve a 6% growth of the agricultural economy.

The International Monetary Fund (IMF) identifies strong performance in the agricultural sector as one of the key growth factors for Kenya. Other areas of improvement include inadequate policy implementation, climate change and low funding for agriculture research. The African Union Science, Technology and Innovation Strategy for Africa (STIISA) adopted in 2015, encourages countries to allocate at least 1% towards research and development.

NPCK is committed to supporting the Big 4 Agenda where the potato is identified as a priority crop to contribute to food security and nutrition. We will continue engaging in policy dialogue forums to lobby the National government to increase its budget allocation to agriculture.

Charity Maina, Research & Development - NPCK

A new project dubbed “The National Agricultural and Rural Inclusive Project (NARIGP)” is set to benefit 21 counties, in a bid to boost Kenya’s food security. These counties include Samburu, Turkana, Makueni, Meru, Kitui, Embu, Kilifi, Kwale, Narok, Kirinyaga, Kimbu, Muranga, Nakuru, Bungoma, Trans Nzoia, Nandi, Vihiga, Kisii, Nyamira, Migori, and Homa Bay. The project is funded by the Government of Kenya and the World Bank’s International Development Association (IDA) funded project.

The project aims to increase agricultural productivity and profitability for rural communities in the identified priority value chains. The project is structured into four components; Support for community-driven development, strengthening producer organizations and value-chain development, supporting county community-led project coordination and management. Five counties; Nandi, Kiambu, Nakuru, Meru, and Narok counties have received funding through NAGRIP to support the potato value-chain. The NARIGP potato value-chain Stakeholders Platform in Nandi was officially launched on 20th June 2019 by Dr. Bernard Kiplimo, CECM Agriculture and Cooperative development, Nandi County. The County recently purchased certified seed potato worth Ksh. 1.5 M set to benefit members of Nandi Potato Growers Cooperative.

NPCK is one of the organizations appointed in the county potato stakeholder platform committee to advise and guide the county in developing an investment plan for the potato value chain. NPCK is also providing advisory support to Narok, Meru, Kiambu and Nakuru counties, which are set to benefit too from the NARIGP

Ksh. 1.5M Value of seed potato purchased by Nandi county to benefit members of Nandi Potato Growers Cooperative.

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A Jackpot of Potatoes

How a partnership between county government and private sector actors improved yield and income Small scale potato farmers in Narok, Meru, and Molo.

Potato farmers in Narok, Meru, and Molo Counties have seen a significant improvement in yield and income, as a result of cooperation with public and private partners under the umbrella of Bayer. In recent years, Bayer conducted a baseline study amongst small scale potato farmers to identify the key needs to increase both yield and income. This survey identified the following challenges; lack of agronomic knowledge, lack of access to certified potato seed, limited knowledge on the use of fertilizer and crop protection. Further, the farmers have problems accessing markets.

In conjunction with the county governments and private sector partners, a successful consortium was constituted to provide the farmers with a suite of services that would help them learn how to improve their yields. The farmers were trained on the benefits of certified seeds and Agrico supplied them with certified seeds of new potato varieties. The basic fertilizer program was modified with innovations of YARA and the control of pests and diseases was optimized using innovations of Bayer. Quipbank, a mechanization services company assisted the farmers with ploughing, harrowing and ridging and Siraji Sacco, local microfinance assisted the farmers with financing.

Various 0.5-acre demonstration plots were allocated to groups of 30 farmers, where a total of 2000 farmers received hands-on training on certified seeds, usage of fertilizer and crop protection products to improve yield, in partnership with extension team from the county governments. Carrefour Supermarket was the retail partner, with trading support offered by Molly Flowers and CropCare.

During the implementation, the farmers were classified into 3 broad groups; the basic farmer group who received no support in their farming, the advanced farmer group who received training on good agronomical practices, fertilizer and crop protection and the connected farmer group who received training on good agronomical practices, certified seeds, fertilizer and crop protection. The third group also received connection to a market outlet (Carrefour Supermarkets).

It was observed that after the harvest, the basic farmer group struggled to generate an income while both the advanced farmer group and the connected farmer groups had improved in both yield and income. The advanced farmer improved group their yield with a factor 3 compared to the basic farmer group. The connected farmer group improved their yield with a factor 6 compared to the basic farmer and his income with a factor 9. The adoption of production innovation reduced the production cost from Ksh.30 to Ksh.11 per kilogram of potatoes. The potato project in Meru, Narok, and Molo illustrate the benefits of synergy between public and private partners to improve the income and yields of the potato farmers.

In conjunction with the county governments and private sector partners, a successful consortium was constituted to provide the farmers with a suite of services that would help them learn how to improve their yields.

Diana Gitonga, Vegetable & Potato Go-To-Market Manager SSA, Bayer East Africa Ltd.
Growing Potato in Trash Bags

A circular economy opportunity, to grow potatoes in a trash bag can contribute to urban farming and help improve nutrition in towns or areas where arable land is not available. An urban farmer needs to place seed potato in a warm spot one week before planting to enable sprouts to grow. The seed potato is cut into pieces that are approximately two inches wide with at least two sprouts and kept at room temperature for three days.

Drainage holes are made at the bottom of the trash bag, filled with soil and placed at an area of choice including a balcony or veranda ensuring it gets full sunlight. The seed potatoes should be dusted with agricultural sulfur to protect them against fungal disease and planted two inches deep with the sprouts facing upwards and water well.

More soil is added in the bag as the sprouts grow tall. The amount of soil should be adequate for the sprouts to poke through it, with sufficient watering to ensure the soil is not soggy. When the foliage withers and the leaves begin drying, then the potatoes are ready for harvesting. The foliage is cut and watering stopped, to allow them some days for the skin to toughen up. When harvesting, the bag is slit on the side to release the potatoes. Avid urban farmers are encouraged to do other batches at different intervals to enjoy a continuous harvest. Potato can also be grown in buckets and cartons boxes.

*Milkah Kimani, Finance Department - NPCK*

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Extension Of Certification Of Generation 3 (C3) For Seed Potato

Recently, KEPHIS had started implementing the reviewed Seed Regulations (2016) that requires certification for schedule two crop ends at C2 generation instead of C3 generation effective March 2019. Following consultations between the industry players during the 2018 National Seed Stakeholder forum, it was noted that potato seed availability would be affected by this implementation due to the critical situation of high shortage of certified seed potato and very low access to farmers in Kenya having not improved significantly. NPCK was tasked to lobby and request KEPHIS for a special consideration of potato crop to be exempted from the regulation of having C2G as the last class for certification and instead have C3G until such a time that there will be enough certified seed potato in the country.

KEPHIS granted the request and seed potato was exempted and will be certified up to C3 generation. This may be reviewed overtime subject to availability of seeds. Allowing multiplication of seed potato for more than two seasons will increase quantity of certified seed potato available and will be more cost effective to the seed producer, Vis a Vis multiplication for two seasons only. This will go a long way in improving and addressing the challenge of availability, accessibility, and affordability of certified seed potato.

*Samuel Ngari, Policy, Lobby and Advocacy - NPCK*
NPCK in collaboration with partners organized the 2019 National Potato Conference and Trade Fair on 23rd - 24th May 2019 at KALRO HQ. The conference with the theme; “Transforming potato value chain through innovation and partnerships for food and nutrition security, employment and accelerated economic growth” attracted over 1,000 participants and 28 exhibitors drawn from the potato value chain.

The first day of the conference targeted youth and SMEs to showcase business opportunities along the value chain, business models and finance options available. The interactive sessions not only gave the participants an opportunity to get answers to their questions and direction from the experienced experts but also networked with a goal for further guidance after the event. The highlight of the Conference was the official launch of the Crops (Irish Potato) Regulation 2019 by the Cabinet Secretary (CS), Ministry of Agriculture, Livestock and Fisheries (MoALF), Hon. Mwangi Kiunjuri. The regulation stipulates guidelines on the packaging, marketing, and transportation of Irish potatoes.

The event also saw the official launch of the 2019 potato variety catalogue, which gives details of 60 varieties. Four new varieties namely; Zarina, Farida, Rock, and Lady Terra were added while Ambition, Saviola and Toluca present in the 2017 catalogue were omitted as the breeder ceased their production. The 2019 potato variety catalogue is accessible on NPCK’s website.
2019 Regional Potato Fairs

One way the NPCK and its partners achieve its mandate of creating platforms for networking, information sharing and promotion of best agricultural practices in the potato sector is through organizing regional potato fairs which brings together potato sector players with a goal of exchanging ideas and learning about new potato varieties, production of certified seed and ware potato, marketing, mechanization, good agronomical practices among others. These fairs are practical in the sense that the knowledge is passed through demonstration sites. The regional fairs are organized in partnership with potato producing Counties.

The year 2019 saw NPCK and partners continue with this mission by successfully planning and hosting the North Rift region potato fair and the Eastern and Central Region Potato fairs in Uasin Gishu and Meru County respectively.

The North Rift Region Potato Fair

The North Rift Region Potato Fair was held on 22nd February 2019 at the Agricultural Mechanization Service (AMS) Chepkoilel, Eldoret. The event was organized by MoALF and the directorate of agricultural mechanization in Uasin Gishu County in partnership with NPCK and supported by AGRA. 31 exhibitors displayed their products and services in the areas of crop protection, mechanization, soil nutrition, seed and ware potato production, financing, crop rotation among others. The event attracted over 1200 registered participants that included farmers, development partners and stakeholders in the potato subsector from all over the country.

The event was graced by Dr. Oscar Magenya, Director - State Department for Agricultural (SDA) Research who represented the CS, MoALF. In his speech, he reiterated the government’s commitment to improving the potato subsector as outlined in the Big 4 Agenda. The deputy governor of Uasin Gishu Hon. Daniel Kiprotich Chemno also graced the event and urged farmers in the county to diversify their crops in order to reduce the risks associated with relying on one crop.

The Eastern and Central Region Potato Fair

The Eastern and Central Region Potato Fair was held on 29th November 2019 in Meru. The event which had 30 exhibitors and over 1,000 registered participants was organized by the County government in partnership with NPCK, World Food Program-Farm to Market Alliance and other partners.

The guest of honour was Hon. Kiraitu Murungi, EGH-Governor of Meru County who appreciated the efforts of the NPCK, its partners and exhibitors for bringing the latest knowledge in potato farming to the county. He also thanked the farmers who had braved the cold weather to participate in the event and reckoned the important role played by farmers in the county's economy. Hon. Kiraitu further assured the participants that his County Government recognizes the role potato farming plays and will continue to support it in his bid to make “Meru County great”.

Potato Production package

The 2019 Eastern and Central Potato fair event saw six potato farm input and service providers namely: African Farms and Market Ltd (AFMA), Agrochemicals Association of Kenya (AAK) and Crop Life, Toyota Tsusho, Corteva Agriscience, Cropnuts, and UPL/Arysta come together to offer a Potato Production Package (PPP) to farmers participating at the event. The package
which was in form of a voucher was made up of nine products and services that were sold at a discount of up to 15%. The products included soil testing, potato specific fertilizer, biofertilizer, agrochemicals and spray services. To benefit from the promotion, farmers were required to present the vouchers to specified Agrovets in the region by May 2020.

**Thariq Muchiri, Liaison partnership and Communication - NPCK**

The agriculture sector had over a long time been overburdened by over 130 different pieces of legislation some of which were conflicting. Reforms in the sector culminated in the enactment of three pieces of legislation for the agriculture sector namely; Kenya Agriculture and Livestock Research Organization Act, 2013 (KALRO Act, 2013) Agriculture, Fisheries and Food Authority Act, 2013 (AFFA Act, 2013) and the Crops Act, 2013. The Crops Act provides for the regulation, development, and promotion of the over 110 scheduled crops and empowers the Cabinet Secretary in charge of agriculture to develop regulations for that purpose. The ministry developed, through the Agriculture and Food Authority and stakeholders, draft regulations for various crop commodities that are at various stages towards being approved and gazetted. The Irish Potato Regulations, (2019) were the first to be gazetted and is meant to streamline potato value chain activities.

The enactment and enforcement of crop regulations are listed in the Big 4 Agenda as one of the legislative support required for the achievement of the food and nutritional security target. Targets in this government’s development blueprint include increased annual potato production from 1.2 million metric tons in 2018 to 6.0 million metric tons per year by 2022. Increased production of basic potato seed and certified potato seed is one of the strategic activities, in addition to efforts by the Ministry to facilitating public and private seed multipliers to utilize arable land from public institutions as a way of increasing acreage under seed potato.

The development of the Crops Act (Irish Potato) Regulations, 2019 went through a rigorous consultative and participatory process involving critical value chain actors and players. These included the Council of Governors, National Potato Council of Kenya (NPCK), the Agriculture Council of Kenya (AgCK), Research Institutions, private investors among others. It was unanimous that the potato regulations were long overdue. It was also clearly evident that lack of regulations led to inequitable distribution of benefits along the value chain through exploitative, uncontrolled and disorganized activities.

The regulation development was also based on the need for a supportive policy environment to address constraints and challenges faced by the Irish Potato sub-sector. There had been increased challenges in marketing quality produce arising from the use of extended bags often leading to exploitation of farmers and diminished returns for farmers.
The new Regulations, therefore, seeks to put in place measures that would improve standards and streamline stakeholder operations. When fully implemented, the potato regulations will have several positive socio-economic impacts on the potato farming communities and the economy as a whole. The economic benefits of the regulation include increased yields of Irish potato fueled by increased uptake of appropriate seed and inputs, increased private investments in seed production, potato production, warehousing, agro-processing and marketing of potatoes and income and by the various actors in the value chain.

**Summary of the Crops (Irish potato) Regulations, 2019**

The food crops sub-sector has largely been unregulated since Kenya attained independence and the development of the Crops (Irish Potato) Regulations, 2019 is considered a key milestone. These regulations were largely premised on the necessity for a supportive policy and regulatory environment to address a number of constraints facing the sub-sector. This will go a long way to improve potato industry standards and operations when fully implemented.

The regulations largely provide for the registration of the growers and all the value chain players for purposes of data collection to facilitate effective planning both at the county and National Government. Safe use, storage and disposal of registered 50KGS

“**The packaging of Irish potato produce should be done in clean food-grade material in a maximum weight of 50kgs per single unit package.**"
pest control products on the production of the Irish potatoes is emphasized, with the growing global trend of traceability, especially in accessing global markets. The packaging of Irish potato produce should be done in clean food-grade material in a maximum weight of 50kgs per single unit package. All potatoes for trade shall be sorted, graded, packaged, labeled, transported and stored as per national, regional and international standards. All potatoes for commercial purposes should be stored in an inspected and registered facility. The regulations further make provisions for the appointment of inspectors for the enforcement of the regulations. The regulations further make provisions for the appointment of national and county inspectors to enforce implementation. Upon full and successful implementation, it’s expected that a register of all Irish potato farmers and other value chain players and the actual information on production at different times of the year shall be in place. A traceability system for Irish potatoes will open up external markets. Improved quality of traded ware potato, collective bargaining by the farmer cooperatives and associations and investment in infrastructure including cold storage facilities will increase and assured household incomes. Processors will access high-quality products and in large volumes which will in turn increase demand for high-quality seed. Improved packaging materials leading to a reduction in postharvest losses.

The Regulations bear much promise in streamlining production, trade, and interactions among key players in the sub-sector and there is a need for commitment to implementing and enforcing them with the support of all stakeholders. The support of county governments in the potato growing regions during the implementation of the Regulations will be critical. Partnerships with stakeholders are needed for the complete roll-out and successful implementation of the regulations for an orderly subsector. This will attract much-needed investments into the entire Irish potato value chain. The Crops (Irish Potato) Regulations were officially launched by the cabinet secretary for Agriculture on 24th May 2019, at KALRO Headquarters during the 2019 Annual National Potato Conference. A downloadable copy of the regulations is accessible on the NPCK website.

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The Writer, Leonard Kubok is the head of Food Crops Directorate, Agriculture and food authority (AFA). Email: leonard.kubok@gmail.com
Maintenance of equipment is fundamental in mechanization business operations. Proper machinery use and care will maximize the lifespan of the machinery and reduce breakdowns that result in costly downtime. It is very important that power-matched implements are used effectively and properly maintained on a regular basis.

Most mechanization service providers (MSP) have limited skills and exposure to latest technology used in equipment, with many having limited awareness of machinery beyond the plough and land preparation. They have limited knowledge in vital equipment adjustments, calibration for optimal operations and applications and safe use of the equipment.

New farming methods have since come into play, necessitating retraining on the operational performance of machinery and equipment and records on machine use data, tracking of equipment performance and routine maintenance schedules.

During the month of August 2019, GIZ (NUSEPPP) in cooperation with AgriMec Africa Ltd and AMS Nyandarua County trained a team of 25 tractor operators on the theoretical background of a tractor and use of different crop and livestock mechanization applications. The training covered principles and practice of specialized tractor and implement parts including engine and engine parts, batteries, power-train, hydraulics, tires tractor-implement calibration, servicing, routine maintenance and safe-use of machinery among other topics.

The tractor operators promised to apply the knowledge and skills gained in their daily operations and requested for follow-ups and refresher courses in the near future.

“By GIZ NuSePPP Team

Mechanization Service Providers (MSPs) learning how to calibrate a potato ridger to the required depth
Kisima Farm Ltd seed potatoes are Kenya’s best brand of seed potatoes. We supply high quality, certified seed potatoes that a farmer can expect increased yields.

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The Global Potato Value Chain Working Group Mission in Kenya

The Global Potato Value Chain Working Group (GPVCWG) pursues to offer an effective platform where good practices can be exchanged, needs and opportunities articulated, and knowledge transfer organized. Supported by Giz, the group had its Mission in Kenya in May 2019 and had representatives from Kenya, Uganda, Mali, Tunisia, India, Cameroon and Nigeria. Partners from Government, Research and private sector together with Giz Project team from Green Innovation Center and Nutrition-Sensitive Potato Partnership Project (Nuseppp) came together to discuss country experiences and best practices for potato value chain development as well as effective measures to overcome challenges in the value chain.

The Royal Tropical Institute Amsterdam (Kit) presented the outcome of country studies on the potato value chain explaining the potentials and challenges in the respective countries. There was an excursion visit to Kalro-Tigoni Centre to learn processes of Seed Potato Production. At Kephis Hq, the group was taken through the processes of seed certification, variety release, and other services offered by the organization.

At Npck the team was briefed on sector coordination activities being implemented by Potato Council and lessons learnt were shared on formation of Npck, role of council in the potato industry, and the role Vazi-Soko (a digital platform), seed and ware potato production training materials and seed action plan 2019-2021 in addressing various challenges in the sector.

The GPVCWG participants were impressed with the milestones achieved in potato subsector in Kenya resonating from having an organized Public Private Partnership (PPP) and a multi-stakeholder platform that helps to coordinate the potato value chain activities in Kenya. As a result members from Nigeria and Cameroon identified formation of Potato Stakeholders’ platform as a priority and requested for support from NPCK in helping establish and operationalize similar platforms in their countries.

Under the Global Umbrella of the One World No Hunger Initiative (SEWOH) and with the support of GIZ through CIP, representative from NPCK traveled to the respective countries between September and November 2019 and initiated the process of supporting them. The GIZ, CIP and NPCK are expected to continue supporting the two countries and others who may need such support.

Charity Maina & Adrine kirobi -NPCK
ALL REGISTERED SEED PRODUCERS (Updated 20th Jan 2020)

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<tr>
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<td>Gene Biotech seeds LTD</td>
<td>Kajiado</td>
<td>0739-332993-Nayaram, <a href="mailto:naraman@hotmail.com">naraman@hotmail.com</a></td>
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<td>Aberdare Technology Limited</td>
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<td>Kenya Highland Seeds (Royal seed)</td>
<td>Nairobi</td>
<td>Peter 0706 625555 Peter <a href="mailto:francombe@khs.co.ke">francombe@khs.co.ke</a></td>
<td>Royal, Serpo Mira</td>
</tr>
<tr>
<td>Starlight Cooperative society</td>
<td>Nakuru-Molo</td>
<td>0721109200</td>
<td>Shangi and sherekeha</td>
</tr>
<tr>
<td>Mahindra and Mahindra s.Africa Ltd</td>
<td>Nairobi</td>
<td>P.O. Box 14596-00800 Nairobi 0734282818</td>
<td>Markies, Rudolph, Destiny, Maniou.</td>
</tr>
<tr>
<td>Freshcrop Ltd</td>
<td>Nyandarua</td>
<td>Chris Gaspery 727220484 <a href="mailto:chrisgaspery1@gmail.com">chrisgaspery1@gmail.com</a></td>
<td>Dutch Robijn, Shangi and Konjo</td>
</tr>
<tr>
<td>Kimingi Farm</td>
<td>Nyandarua</td>
<td>0739 850 064, 0726 107 722</td>
<td>Shangi, Dutch Robijn, Asante, Sherekeha, Sagittal, Taurus, Challenger, Panamera, Unica, Dutch Robijn, Konjo and Voyager.</td>
</tr>
<tr>
<td>Bubayi products Ltd</td>
<td>Kitale</td>
<td>0735488001, 0722599419</td>
<td>Shangi, Dutch Robijn, Unica</td>
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<td>NTS Turmeric</td>
<td>Nyandarua</td>
<td>Kennedy Nyakango, 0720036271</td>
<td>Shangi, Dutch robijn, Unica</td>
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<tr>
<td>Taita Papa Seeds</td>
<td>Taita Taveta</td>
<td>Cranson Nkidiho 0726 007 669/0735402986</td>
<td>Shangi, Unica, Wanjiku</td>
</tr>
<tr>
<td>Jancosta Limited</td>
<td>Nyandarua</td>
<td>James Nderu 0714756608 <a href="mailto:jnderu44@gmail.com">jnderu44@gmail.com</a></td>
<td>Shangi, Dutch robijn, Unica, Wanjiku</td>
</tr>
</tbody>
</table>

Seed Potato Production and Certification Process

**Registration as a seed merchant/grower**

To produce seed potato, one can register as a seed merchant at Ksh75, 000 with an annual renewal fee of Ksh10, 000 or as an out-grower of a registered seed merchant at Ksh 500 with an annual registration of Ksh300. To apply to be a seed merchant, fill in the seed merchant registration form (SR1 on the KEPIHS website) and submit to KEPIHS with the prescribed fees shown in ‘a’ above.

**Preparation for planting**

Soil testing must be conducted by KEPIHS to test for Bacterial Wilt and Potato Cyst Nematode (PCN) before planting. The cost for testing for Bacterial Wilt and PCN is Ksh3, 000 and Ksh1,000 respectively. Identify the source of your basic seed. Out-growers are advised to have an MOU with the seed merchant for the assurance of getting the quantity of basic seeds they want. Ensure isolation distance between the seed crop and other potato crops.

A seed crop shall be separated from neighboring ware potato crops or those whose sources are unknown by distances of: 100 meters for breeders, pre-basic and basic seed and 50 meters for certified seed classes I, II and III

**Inspection**

After planting, apply for field inspection by filling in the Seed Regulation Form (serialized booklet issued by KEPIHS) and submit to KEPIHS. Application should be done not more than 30 days after planting. The following details are captured in the SR5 form: The acreage planted.

The history of the land where the seed has been planted (what crops you have planted in the last 3 seasons, etc) and related information will be needed. Class and origin/source of the seed used (Label – proof of origin); lot number of seed used.

Date planted Approximate date of harvesting Species and variety
Field inspections

Once the forms are received by the KEPHIS inspection unit, they are arranged based on the planting dates to enable them schedule for field inspection accordingly. Timing of field inspection is important to ensure that inspectors are able to check for:

- Isolation distance between the seed crop and other potato crops
- Morphological characters for trueness to type of the variety and for off-types
- Symptoms and incidences of specified diseases

A minimum of 2 field inspections are done. More inspections may be included if the seed multiplier does not comply with instructions given during certification.

1st field inspection is done when the crop is flowering or at canopy cover for non-flowering varieties or at tuber initiation. Isolation, off types and diseased plant levels are identified guided by the Seed and Plant Varieties Act (CAP 326) and the seed multiplier advised on what to do.

2nd field inspection is done at tuber development stage. The inspector verifies that problems identified during the 1st inspection have been dealt with.

Cost of each field inspection is Ksh430 per hectare (Ha) and a minimum fee of Ksh1,935 per seed field plus a mileage fee of Ksh58.50 per km.

Post-harvest inspection

Lot inspection is done to ensure that grading has been done properly as per the two recommended sizes (Size I i.e. 28 to 45 mm and Size II - 45 to 60 mm) and that no damaged potatoes or diseased tubers have been included.

If grading has been done properly then the seed multiplier applies for the number of labels needed:

- Label specifies potato variety, seed size, net weight, seed generation, lot number, date of sealing, region grown; so multiplier applies according to what they have.

Label cost Ksh15 per label at a minimum cost of Ksh990

Sealing and labeling is the final stage done by KEPHIS

Seed merchant is now free to sell their certified seeds.

NB: The seed grower should be knowledgeable in potato production and should have adequate sorting, grading and storage facility approved by KEPHIS.

For more information, please contact:

The Managing Director, KEPHIS, 0709 891 000, director@kephis.org, www.kephis.org

To produce seed potato, one can register as a seed merchant at Ksh75,000 with an annual renewal fee of Ksh10,000 or as an out-grower of a registered seed merchant at Ksh500 with an annual registration of Ksh300.
Guidelines for monitoring quality of certified seed potato

Potato yields are affected by several factors of which the most important one is the quality of seed used. The average yield increase from the use of good quality seed ranges from 30 to 50 percent compared to farmers who use recycled seeds. Farmers face challenges getting certified seed potato since seed production has remained low at less than four per cent of the national requirement. Low seed production is due to challenges such as few numbers of certified seed multipliers and the cost involved in multiplying. However, demand for certified seed potato is growing with increasing awareness on the importance of using certified seeds. To guarantee the quality of the seeds, potato farmers are encouraged to check the quality of certified seed before they purchase from a registered seed merchant.

The seed potato packaging bag must have a KEPHIS label inside with the following information:

a. Name of the potato variety e.g. Shangi, Unica, Sherekea, Asante etc.
b. Seed size e.g. size I, size II, or mini-tubers
c. Net weight (the weight should not exceed 50 Kg) e.g. 20 Kg, 50Kg
d. Certified seed generation e.g. BASIC, C1G, 2ND GEN etc.
e. Lot number e.g. 17-17344H
f. Date of sealing e.g. 10/23/2017
g. Label colour: Breeder’s/Basic (White), C1G (Blue), 2ND – 3RD GEN (Pink)
h. The label should look like the sample below:

Farmers are also advised to observe the following:

1. Purchase seed potato from registered seed producers only.
   a. You can confirm with KEPHIS or NPCK through the contacts provided below.
2. Do not buy certified seed which has no KEPHIS label stitched to the package.
3. Obtain an official receipt on purchase of seed.
4. Keep the receipts and the label throughout the growing season for reference in case of complaints.
   Keep all useful evidence such as seed potato packaging, receipts, label etc.
5. Do not plant seed tubers that are rotten, over sprouted, damaged or mis-shapened.
6. Report any strange diseases, pests or any other anomaly found on certified seed potato to KEPHIS, NPCK or agricultural extension officers for mitigation/management action
   a. The reporting should be done immediately the anomaly is discovered and should be within the growing season and affected tubers or anomaly should be preserved as evidence
   b. Do not tamper with any information on the label or interfere with the package

In case of any complaints on seed quality, farmers should contact KEPHIS and NPCK immediately on the following telephone numbers or email:

KEPHIS HQ- Tel: 0709 891 000, Email: director@kephis.org, kephisinfo@kephis.org
KEPHIS Regional Offices:
- Kitale -0722209502
- Nakuru - 0722209503
- Embu - 0728 600 092
- Mombasa - 0722209501
- Kisumu - 0728 607 093
NPCK- Tel: 0799 739 578, Email: complaints@npck.org

Compiled by Henry Chemjor, Value Chain Dpt. - NPCK
A seven-point plan for the revitalization of the Potato Sector in Nyandarua County was unveiled by the Chief Officer Agriculture, Livestock and Fisheries, Dr. M Gikaara during the Irish potato stakeholders meeting that was held on 7th August at Ol-Joro-Orok in Nyandarua county. The meeting was organized by the Agriculture Sector Development Support Programme (ASDSP-II) in collaboration with other stakeholders to deliberate on the way forward for the potato subsector.

Dr. M Gikaara said that the plan will involve the diversification of the varieties being produced, seed production, production efficiency, pest and disease control, reduction in post-harvest losses, processing and support to the implementation of the potato regulations 2019.

**Diversification in the varieties under production:**

This is being done in collaboration with KALRO and other stakeholders like IFDC and GIZ. The introduced varieties are higher-yielding, good for processing and some are resistant to pests and diseases. Some of these targeted varieties are Sagitta, Dutch Robijn, Unika, and Markies.

**Seed Production:**

The department is in the process of establishing a Tissue Culture Lab for the production of potato seeds. The Lab will be located at Ol-Joro-Orok ATC and the construction of the facility is ongoing. The department is also collaborating with the National Youth Service, Tumaini seed production project. The objective is to raise the use of certified seeds by the farmers from the current low of 5% to at least 50% in 2-3 years.

**Increasing production efficiency through increased use of machinery:**

Nyandarua County has procured modern machinery including; planter, ringer, and harvester. Farmers will access the machinery at a subsidized fee to increase mechanization. Further, the county is in the process of procuring handheld equipment including walk-behind tractors. This will help reduce the costs of operations and improve farmers’ margins from potato farming.

**Disease and pest control:**

This is being done in collaboration with KALRO. One of the targeted pests is Potato Cyst Nematode (PCN), with an objective to curb the spread of the pest. The county has set aside funds for research and development to cater for this exercise this financial year. The introduction of pest and disease resistant or tolerant varieties is also part of the way forward in curbing the menace.

**Reducing Post-Harvest losses:**

The County Government is in the process of negotiation with Germany for the establishment of a cold storage facility in Olkalou. The County is also constructing aggregation centers in the main Potato producing zones. The department is also collaborating with IFDC in the expansion of on-farm small-scale storage facilities in the county.

**Establishment of a potato processing plant:**

The County Government is collaborating with the National Government in this venture to establish a potato processing plant and Ksh. 700 million has been set aside for the project, estimated to cost Ksh.1 Billion. Through value addition, we will create employment for the youth and increase the commercial value of potatoes.

**Support for the implementation of the Potato Regulations 2019:**

Through the Potato Regulations 2019, there will be the establishment of order in the sector and we anticipate farmers will get more value from their produce. The success of the strategy will mainly depend on the collaboration of the stakeholders involved in the potato industry and political goodwill.

The writer, Simon N Njoroge is the ASDSP-II County Coordinator Nyandarua County. Email: asdspnyandarua@gmail.com
Developing smallholder value chains – Kenya

Feed the Future: Accelerated Value Chain Development program—phase II—Potato value chain component

Agriculture continues to dominate Kenya’s economy, accounting for one third of GDP and employing 75% of the rural population. Maintaining growth and accelerating development in this important sector will require large-scale adoption of productivity-enhancing technologies and innovations. This project supports increased food and nutrition security and higher incomes for everyone involved in specific agricultural value chains, making a significant contribution to more inclusive economic development.

Background

Attaining inclusive growth of the agriculture sector in Kenya, and thereby supporting the country’s economic development, depends on boosting food security, building resilience among people and the environment, managing ecosystems sustainably, adapting to climate change, and strengthening private sector participation and investment.

The United States Agency for International Development-funded Feed the Future initiative, in partnership with the government of Kenya, aims to reduce hunger, malnutrition and poverty in target geographical areas (known as ‘zones of influence’). This is achieved by promoting sustainable increases in agricultural productivity and nutrition-sensitive production, while building inclusive and competitive market systems. As part of this initiative, the Accelerated Value Chain Development (AVCD) program is being implemented by a consortium of international research institutions, including the International Potato Center (CIP). AVCD focuses on priority value chains, namely livestock, dairy and staple foods, such as potato.

Phase I of the potato value chain component of AVCD supported approximately 47,000 farming households with new technologies, allowing them to improve their productivity and market engagement. To improve the supply of quality seed potatoes, 150 model farmers received support to develop seed multiplier businesses. Farmers gained access to new varieties and learned about productivity-enhancing technologies through season-long training on small farms supervised by county extension staff. These interventions resulted in two seed businesses launching production of certified seed potato and several seed multipliers producing quality seed with a business plan to progress towards certified seed. The project also supported local government offices in helping farmers establish potato cooperative marketing groups.

AVCD phase II objectives

Enhance inclusive and sustainable agriculture-led economic growth through:

Phase I Phase II

Kenya AVCD potato value chain component

Phase I

approx. 47,000 farming households with new technologies, allowing them to improve their productivity and market engagement.

150 model farmers received support to develop seed multiplier businesses

Phase II

3,000 ha of land under improved management practices

3,000 expected to reach individuals

improve the diets of 2,000 children under two

engage 40% of women

Expected outcomes

2,000

20,000 USD 4 million

generate

expected to reach

Expected outcomes

http://www.feedthefuture.gov
The widescale adoption of technologies and innovations—successfully adopted in the zones of influence during phase I of AVCD—in other Kenyan counties where potato is a less important crop; and

Enhanced self-reliance of county-level government institutions, farmer organizations and the private sector.

**Approach**

To support national priorities, all AVCD activities are aligned with the government of Kenya's agricultural development strategy. The intervention takes a whole value chain approach addressing the supply and demand sides of market development. The supply side relates to increasing productivity through improving knowledge and technologies, supporting potato farming as a business, and boosting nutrition. To stimulate demand, AVCD works to improve market links and marketing systems, strengthen farmer marketing groups, and promote government investment to sustain and evolve interventions.

Gender mainstreaming plays an important role, promoting equality in decision-making and control over resources. Due to their roles in determining household diets, women are specifically targeted with public awareness messages on nutrition. To build resilience to shocks and stresses, including climate change, AVCD encourages sustainable agricultural practices. While gender and youth empowerment and employment are promoted to enhance inclusive business development.

**Expected outcomes**

The potato value chain component of AVCD phase II is expected to reach approximately 20,000 individuals and put 3,000 ha of land under improved management practices. Activities should generate around USD 4 million in value, with additional investment from the public and private sectors. By promoting nutrition messages, the initiative aims to improve the diets of 2,000 children under two and engage 40% of women in the target districts in nutrition-sensitive agriculture.

This value chain component will continue to promote potato as a cash crop that significantly contributes to food security in Kenya. Building on the success of phase I, the initiative is developing seed systems in additional districts and building the capacities of small-scale farmers to increase their yields and establish marketing cooperatives. The potato component of AVCD also promotes the involvement of women and young people in marketing groups and cooperatives to build empowerment and create new employment opportunities. Additional activities help local government offices become self-reliant in supporting value chain development.

**Key actual and expected outcomes**

<table>
<thead>
<tr>
<th></th>
<th>Phase I</th>
<th>Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals adopting improved management practices</td>
<td>47,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Hectares of land under improved management</td>
<td>13,300</td>
<td>3,000</td>
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<tr>
<td>Value of annual sales from farms and agri-businesses</td>
<td>USD 20.3 million</td>
<td>USD 4 million</td>
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<tr>
<td>N°. of children &lt; 2 years with improved nutrition</td>
<td>1,400</td>
<td>2,000</td>
</tr>
</tbody>
</table>

**Contact**

**Monica Parker**
CIP, Kenya
m.parker@cgiar.org

**Duration**
January 2019–December 2020

**Budget**
USD 1 million

**Implementing partners:** Bungoma, Elgeyo-Marakwet, Meru, Nandi, Taita Taveta and Uasin Gishu county governments of Kenya; Farm Input Promotions Africa; National Potato Council of Kenya

**Private sector partners:** Stokman Rozen Kenya; Genetic Technologies International Ltd

CIP thanks all donors and organizations which globally support its work through their contributions to the CGIAR Trust Fund. https://www.cgiar.org/funders/
Transformation in Elgeyo Marakwet

The 50kg bag nicknamed “Tolgos”, the governor Elgeyo Marakwet County H.E after Alex Tolgos, due to his relentless efforts to regulate the packaging of potatoes.

In 2013 when the Agricultural Sector Development Support Programme (ASDSP) started working in the County, the potato value chain was among the three prioritized value chains and had a myriad of challenges. The two main issues were unstructured market and inadequate certified seeds.

This is the time when the Irish potato regulations were challenged in court, but the County government, ASDSP and all the potato value chain stakeholders carried out a serious campaign on the 50 kg bag which did away with the extended bag of 130kgs and made Elgeyo Marakwet the only County in Kenya which stuck to the relatively smaller bag popularly known as ‘Tolgos’ named after Governor Alex Tolgos due to his relentless efforts to regulate the packaging of potatoes.

The vulnerable groups mainly women had resorted to brewing of alcohol to make ends meet due to lack of economic activities. The governor wedged a relentless war to curb the vice that was threatening lives and socio-economic activities. Over 62 brewers underwent rehabilitation programme sponsored by the county government at “Ukweli” training centre upon which they abandoned alcoholism with some undertaking alternative agri-business activities for example venturing into potato farming among other entrepreneurial ventures. Cheptengis women group came into being formed by 18 rehabilitated women most whom are widows because their husbands died due to excessive consumption of alcohol.

In 2017, the group wrote a proposal to Agricultural sector development support programme and managed to get a grant and bought 32 bags of certified potato seeds worth ksh 96,000 agro chemicals worth ksh 30,000 and the remaining amount used for capacity building on seed production. This came as a game changer to curb low productivity of potatoes per unit area, since the farmers as was of the norm used to recycle potato seeds.

We shared the harvest amongst our members with each getting 5 bags and sold the remaining 90 bags as clean seed at kes2000 each getting a total of Kes.180,000” added Julia Siloi.

Since then, the production has greatly improved as the farmers now produce an average of 150 bags per acre which fetches Ksh 112,500 under average farm management practice.

Farmers accounted that with the clean seeds, the pests and diseases have reduced thus cutting down the costs incurred on fungicides and pesticides and the quality of tubers has greatly improved.

With rigorous trainings by ASDSP and other partners on the importance of using certified seeds, last season alone potato producers...
in the county set aside funds in their wards during public participations worth 11 million for purchase of 3,200 bags of certified seed and the Governor launched the distribution and flagged off the lorries from Molo ADC. This will transform livelihoods since productivity will improve and the value chain actors will benefit more.

By 2017 the area under potatoes had increased from 4 wards to 13 wards and marketing was still a challenge. ASDSP formed, trained, launched and registered the Elgeyo Marakwet Potato Marketing Cooperative Society to champion issues affecting the value chain actors particularly on market access. Cheptengis women group is a member and they had been struggling to control the packaging of potatoes but in vain. When the Irish potato regulations of 2019 were passed as law the cooperative members embraced them, organized themselves and ordered five thousand 50kg bags branded with the logo of their own and launched the packaging.

Mid this year, Cheptengis women group produced remarkable quality and quantity of potatoes but due to glut in Kenyan, the marketing group managed to explore potatoes market in Terekeka (Tanzania) where the group delivered 50kgs packaged potatoes as regulated under 2019 Irish potato regulation using their branded bags.

“We took 202 bags of (50kg packaged) potatoes from four of our members all the way to Tanzania, because the market here in Kenya was not really appealing since it was Ksh 500 per bag and so the total amount was supposed to be Ksh 101,000. We decided to hire a lorry and sold the potatoes at Ksh 990 per bag in Terekeka which gave us Ksh199,980 and when transport was paid we remained with Ksh151,980 a difference of Ksh 50,980 which could not have been possible if the potatoes were sold locally” narrated Agnes Cheptoo the chairlady.

“It took us three days to transport and market our produce and the buyer was amazed since our potatoes were fresh compared with the others. We attributed this to the use of certified seeds. Also it took us the shortest time to dispose our potatoes because it was of better quality compared with what was in the market” Said Christine Bowen the group secretary.

Members of the women group through the proceedings of potatoes have diversified to tree nursery which earned them Ksh 700,000 last year and Ksh134,000 from tomatoes grown in the greenhouse.

From this income, the group members are now food secure, economically empowered and some have acquired assets. For example Agnes Cheptoo bought two acres of land while others used profits to take their children to school and bought cows and sheep and met other financial obligations.

Apart from their daily chores, the group is participating in community engagement such as: recruitment of brewers and alcoholics for rehabilitation, proposal writing for groups that do not have the skills to write for themselves, mobilization for collective purchase and transportation of farm inputs for the potato producers, participate in cultural dances to pass educative information and education of children from poor families.

So far, they have recruited 50 youths who had already drowned in alcohol and substance abuse and are now mentoring them in potato production and engaging them in sporting activities making them proactive. This is just an example of a vulnerable group which has defied the fangs of alcoholism and has transformed and transformed the lives of others.

Since then, the production has greatly improved as the farmers now produce an average of 150 bags per acre which fetches Ksh1 12,500 The group is planning to do resource mobilization through proposal writing, well-wishers and group contributions to purchase a transportation truck worth Ksh 5 million, so that they will be transporting their potatoes at a cheaper cost to the markets within and beyond the Kenyan boundaries. This is their dream and all dreams are valid.

The writer, Jane Talam is the ASDSP Coordinator, Elgeyo Marakwet County. Email talamjane9@gmail.com

Society to champion issues affecting the value chain actors particularly on market access. Cheptengis women group is a member and they had been struggling to control the packaging of potatoes but in vain. When the Irish potato regulations of 2019 were passed as law the cooperative members embraced them, organized themselves and ordered five thousand 50kg bags branded with the logo of their own and launched the packaging.

Mid this year, Cheptengis women group produced remarkable quality
The Potato yields in Kenya are low compared to other potato growing countries like Egypt and South Africa due to a myriad of challenges facing the sector. They include; shortage of quality seed, climate change (especially drought), poor pest and disease control, inefficient and informal marketing systems and high cost of inputs. NPCK in collaboration with its partners has come up with ways of addressing these challenges envisioning the industry will significantly contribute to food security and nutrition, and improved livelihoods as stipulated in the Big 4 Agenda. The following are some of the identified interventions:

**Potato Market and Input Linkage**

NPCK has been working with 22 prioritized potato farmer groups and cooperatives(approx. 10,000 farmers) cultivating potato on about 5,000 acres. Currently, the Council is working on up-scaling to 92 farmer groups and coops in the next 2 years. By organizing farmers into groups and coops, they will be supported to procure inputs and services and sell/market their produce collectively. This will significantly reduce transaction costs through economies of scale and increased bargaining power. Linking farmers directly to market outlets eliminates middlemen and enables them to get better prices than the farm gate prices.

Through potato marketing forums organized by NPCK in conjunction with counties and development partners farmers are engaged in B2B sessions with specific market outlets. They are able to know the potato varieties and tuber sizes that are preferred by the market outlets. They also get a chance to enter into contract farming with the market outlets overseen by NPCK. Contract farming cushions farmers against market uncertainties and related risks. So far, these marketing forums have been held in the Eastern and Central, South Rift, and North Rift Region. NPCK has further mapped new potato markets in Kisumu, Mombasa, Busia, Nyandarua, Meru, Nakuru and Nairobi with a similar objective of understanding the needs of each potato buyer. Through this initiative, 3,600 tons of potato has been supplied directly to specific market outlets in 2019.

**Spray Service Provision**

Through a partnership with the Agro-chemicals Association of Kenya (AAK), NPCK is mobilizing farmers and youths within farmer groups to be trained as Spray Service Providers (SSP). This will help in addressing issues of safe use of pesticides, food safety, proper disposal of pesticide containers and requirements on maximum residue levels and additionally create job opportunities.

"Currently, the Council is working on up-scaling to 92 farmer groups and coops in the next 2 years."
Rapid Seed Multiplication Technology

Youth groups have been supported to venture into seed potato production using rapid seed multiplication technologies such as apical stem cuttings. This will lead to reduced youth unemployment and also increased seed potato production thus meeting the current demand.

Potato Farm Inputs Trials

NPCK in collaboration with Yara and Toyota Tsusho is carrying out trials for various potato fertilizer blends with the aim of finding the best blend that will increase yields for farmers. Other farm trials aimed at helping farmers in mitigating climate change related challenges is on a product called Zeba, a patented, starch-based, super absorbent soil enhancement, designed to keep a constant supply of moisture available to germinating seed, seedlings, and plants throughout the growing season. The trials were done successfully in Meru and Nyandarua County in partnership with UPL.

By Joseph Aguk & Henry Chemjor, Value Chain department - NPCK

Potato Flakes Standards Underway

Processing and value addition is a critical step to increase the commercial value of potatoes in Kenya. Potato flakes are made through boiling potatoes, mashing and then drying potatoes. They can then either be crushed into flour or consumed by adding milk or water for easier palatability. With potato flakes being a new product in the Kenyan market, there is a need to develop the specification standards in order to guide agro-processors on the safety and general guidelines for its production. The Tuber & Crops Technical Committee held a meeting at Kenya Bureau of Standards (KEBS) headquarters in February 2019 to discuss the draft standards specifications for the production of potato flakes. The standards discussed touched on raw materials, additives, contaminants, microbiological limits, packaging materials, weights, ingredients, test standards on nutritional value and safety. The draft standards will be shared with the various industry players’ for input. These standards are expected to create a positive ripple effect across the potato value chain.

Samuel Ngari, Policy, Lobby and Advocacy Dpt - NPCK

Amazing Facts About Potatoes

● The word “potato” comes from the Spanish word “patata”.
● The heaviest potato weighed 4.98 kg and was grown by Peter Glaze Brook (UK).
● 2008 was the UN approved International Year of the Potato. The UN believes that potato is the food for the future, which could suppress hunger in the world.

● Potatoes can also be beneficial to minor health problems. When chopped, it can reduce pain and relieve burns on the skin.
● More than a hundred years ago, the Irish people lived exclusively from potatoes, which were their main food. In 1846 a potato brewery was destroyed by unknown fungi, over 600,000 people died of hunger, and many survivors left their homeland. This is known as “Irish Potato Famine”

● French fries were first served in America in 1801.
● Sweet potato is not actually a potato but swollen roots and is not related in any way with the Irish potato!
● It is possible to combine a potato plant and a tomato plant into a hybrid plant known as “tomtato”, which yields both potatoes and tomatoes!
● Potatoes were the first vegetable to be grown in space! Seed potatoes were first tested in space in 1995 aboard the Space Shuttle Columbia.

● When you buy them, potatoes are still alive! When stored in warm places with moisture, potato begins to sprout as evidence that it is still alive. This is the reason why they are supposed to be stored in cool and dry places.

Horace Muguna, ICT-NPCK
The EVolution in Root Health Potato
New Partnership Creates Job Opportunities for Youths

The GIZ has partnered with Sereni Fries (a chips and crisp potato processing company) on a Youth Empowerment project within the potato value chain. Under this Partnership, GIZ has identified five youth farmer groups in Nyandarua County with over 150 members and are being trained on aggregation, sorting and grading, value addition and contract farming. On the other hand, Sereni Fries offers a market for the youths to supply processing varieties such as Dutch Robijn, Destiny and Markies. The GIZ has further supported Sereni Fries to expand its production line by introducing Crisp processing line, which has expanded markets for the processing varieties. The youths have also been linked to financial institutions such as Tower Sacco for access to input financing. Over 100 farmers have accessed over KES 5 million and also benefited from financial literacy trainings offered by the Sacco.

By GIZ NuSePPP Team

CEO of Sereni Fries, centre, displays his new crisps product at the 2019 National Potato Conference

Genetics Technologies International Ltd

SERVICING AGRICULTURE THROUGH MICROPROPAGATION AND OTHER TECHNOLOGIES

We produce through Tissue Culture Technology the following superior healthy planting materials

- Cooking, Desert and Plantains
- Ruins 11, SL Varieties, etc
- Citrus, Mangos, Avocados, Paw Paw, Passion, Macademia, etc
- Roses, Orchids, Eustoma, Statice, Zantendeshia, Lilies, Gladiolus, etc
- Eucalyptus, Grevillea, Pinus, Prunus, Neem, Melia, Terminalia, Acacia, Moringa, Monihi, Warbugia, Croton, Markhamia, Artemesia, Teak, Jatropha, etc
- Sisal, Vanilla, Aloe Vera, Irish Potatoes, Bamboo, Turmeric, Geraniums, Stevie, Ornamental shrubs, etc

Tissue Culture (Miro-propagation) Stages
Initiation. Multiplication, Rooting, Acclimatization

Tissue Culture Materials - Advantages
Rapid multiplication, Disease Free Crop
Crop Uniformity, High yields

P.O Box 47430, 00100 Nairobi, Kenya, Tel: 0722760373, 0729852403
Fax 3748969, E-mail: kae@africaflexi.co.ke / gtila@wananchi.com /www.gtiliafrica.com
O
ver the years, potato yields in Kenya have been on a steady decline this can be attributed to usage
of poor quality seed that is passed on from several seasons. The use of farm-saved seeds, which is the
common practice throughout the country, comes with many challenges, including bacterial seed-
borne, viral, or fungal diseases, such as late potato blight.

“Most of the potato farmers in the country have been planting inferior seeds, which are mainly leftovers
from their harvests. Because of this, yields have been very poor in terms of quality and quantity,” says
Joseline Nyaga, the Potato Capacity Building (PCB) project officer in Nyandarua County.

With the assistance of the IFDC in partnership with the county government of Nyandarua, farmers have been educated
on the benefits of the usage and proper selection of certified seeds. Farmers were shown how to identify
healthy plants, which they tag early in the season. The tubers harvested from these plants are set aside
for seed. They are also taught how to improvise simple storage facilities that will increase the shelf
life of their produce, and specifically enable them to keep their seed disease free.

Most farmers believe that they need a huge investment to build good potato storage facilities. However,
a study to establish the feasibility of low-cost seed potato storage in Kenya through use of the Diffused
Light Storage (DLS) principle showed that it is feasible to store seed tubers of currently available
potato varieties under low-cost, on-farm conditions for up to eight months. Gathiriga Smart Farmers,
a group in Kipipiri Constituency improvised a storage facility that could come as a savior to many
farmers. The group members, led by the ward agricultural officers, embarked on this project with great
zeal. The structures can either be rectangular or square in shape, and comprised of a raised timber floor,
wooden walls, and a corrugated iron sheet roof.

The structure is meant to provide a conducive environment for seed potatoes, including ventilation,
protection from pests and adverse temperatures, and relative humidity. Light in the store is important for
the promotion of well-sprouted seed necessary for early crop establishment and thus higher yields.
The shallow shelves make inspection of the tubers and scouting for pests and diseases easy. Employing good
agricultural practices such as pest management and certified seeds produces healthy tubers for storage.

This project is a public-private partnership initiative funded by Irish Aid. In addition to availing high-quality inputs, soil fertility
management, and educating farmers on good agricultural practices, this project, implemented by IFDC has partnered with the NPCK to drive
public participation and advocacy, including mainstreaming the Crops Regulation of 2019, which
standardized potato weights across the country.

Written by Mr. Patrick Boro Team
Leader- PCB Project IFDC Kenya
Email: pboro@ifdc.org
**POTATO SALAD**

*Ingredients:*
1. 8 large potatoes
2. 4 Eggs
3. 2 Chopped onions
4. 1 Large Cucumber
5. Freshly chopped parsley (as much as you wish)
6. 2 Cups of Lemon Juice
7. 1 cup of Mayonnaise

*Method*
1. Boil the eggs and place them in cold water. Remove the shells and cut them into small pieces.
2. Cut the potatoes into small cubes then boil until soft.
3. Fry the chopped onions in a pan until they get tender.
4. Chop the cucumber together with the parsley and mix all the ingredients in a bowl.
5. Add the mayonnaise and stir to a uniform distribution, then add the lemon juice to increase flavor.
6. Enjoy your salad with any accompaniment of your choice.

---

**POTATO FLOUR (1 KG)**

*Ingredients:*
1. Four kilos of potatoes

*Method*
1. Peel the potatoes, wash, cook and then mash into a thick paste.
2. Spread the paste out on a dehydrator for 12 to 20 hours.
3. Use a blender or pestle and mortar to crush the dried paste into a fine powder.
4. Store the flour in an airtight container to avoid hydration.

Potato flour can be used in baking cakes, cookies and other types of snacks.

---

**POTATO PIE**

*Ingredients:*
1. Large-sized potatoes
2. Minced meat
3. Eggs
4. Cooking oil

*Method*
1. Boil the potatoes, mash and mound them into ball shapes.
2. Cook the minced meat in your desired flavor until its ready.
3. Make a hole in the round shape mashed potatoes and stuff the minced meat inside them.
4. Beat the eggs completely in a separate bowl and dip the potatoes inside until well coated.
5. Pick them out one by one and deep fry them for few minutes.

Prepare kachumbari on the side or Salsa Salad and enjoy it together with the potato pie.

---

*Written by Milkah Maina, Finance Dpt.- NPCK*
AGRICO EAST AFRICA OFFERS HIGH QUALITY SEED POTATOES

Agrico East Africa has 13 approved seed varieties in the Kenyan market, all high quality high yielding seed potato varieties originating from Holland. A selection of our top performers in Kenya:

<table>
<thead>
<tr>
<th>Variety</th>
<th>Maturing</th>
<th>Main Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destiny</td>
<td>Early (±90 days)</td>
<td>*Early main or second season crop, suitable as a crisping variety  *Good yield and good tolerance  *High number of round tubers with yellow skin and shallow pink eyes  *High dry matter content (23.7%) and very suitable for processing</td>
</tr>
<tr>
<td>Manitou</td>
<td>Early variety (±100 days)</td>
<td>*Maincrop ware variety with an attractive red skin  *High yield and very suitable for home fries or table consumption  *Large oval tubers with shallow eyes  *Good heat tolerance</td>
</tr>
<tr>
<td>Markies</td>
<td>Late (±110 days)</td>
<td>*High-yielding all-around late maincrop  *Good for fresh French fries (chips), crisps, or fresh consumption  *Large yellow, uniform-sized oval tubers with shallow eyes  *Good late blight and virus resistance</td>
</tr>
<tr>
<td>Rudolph</td>
<td>Medium (±95 days)</td>
<td>*A Maincrop ware variety with attractive red  *Very high yielding  *Good heat tolerance  *Suitable for long-term storage  *Nice table variety</td>
</tr>
<tr>
<td>Faluka</td>
<td>Early (±90 days)</td>
<td>*Faluka is an early ware variety with very high yield  *Has large, long oval tubers, uniform in shape  *High resistance to internal bruising  *Good heat tolerance</td>
</tr>
<tr>
<td>Zafira</td>
<td>Medium (±95 days)</td>
<td>*Zafira produces tolerance, good PLRV, PVY and some PCN tolerance  *High yielding table variety</td>
</tr>
</tbody>
</table>

Potato spray programme

<table>
<thead>
<tr>
<th>Weeks</th>
<th>First Emergence</th>
<th>Early Rosette</th>
<th>Rapid Canopy</th>
<th>Flowering</th>
<th>Canopy Complete</th>
<th>Desiccation</th>
<th>Usage Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Soil borne pests</td>
<td>Actara</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8gm 7 7</td>
</tr>
<tr>
<td>4</td>
<td>Leaf miner/mites</td>
<td>Dynamic</td>
<td></td>
<td></td>
<td></td>
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<td>10ml 7 3</td>
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<td>5</td>
<td>Aphids</td>
<td>Enpro</td>
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<td></td>
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<td>8ml 5 7</td>
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<tr>
<td>6</td>
<td>Potato tuber moth</td>
<td>Match</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25ml 7 14</td>
</tr>
<tr>
<td>7</td>
<td>Early &amp; Late Blight</td>
<td>Dacemill</td>
<td></td>
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<td></td>
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<td>80ml 5 7</td>
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<tr>
<td>8</td>
<td>Early &amp; Late Blight</td>
<td>WellGold</td>
<td></td>
<td></td>
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<td>50g 7 7</td>
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<tr>
<td>9</td>
<td>Early &amp; Late Blight</td>
<td>Revus</td>
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<td></td>
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<td>20ml 7 7</td>
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<tr>
<td>10</td>
<td>Early &amp; Late Blight</td>
<td>Noveltis</td>
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<td>50g 7 7</td>
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<td>Early &amp; Late Blight</td>
<td>Revus</td>
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<td>20ml 7 7</td>
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<td>13</td>
<td>Early &amp; Late Blight</td>
<td>Revus</td>
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<td></td>
<td>20ml 7 7</td>
</tr>
</tbody>
</table>

Agrico East Africa

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Offices at Baba dogo RD, Ruaraka, Nairobi.
OUR FERTILIZERS ARE CROP SPECIFIC
Made in Kenya for Kenya soils

Baraka fertilizer is a blended high quality fertilizer with variety of materials that include:

Nitrogen | Phosphorous | Potash | Sulphur
Calcium | Magnesium | Lime | Zinc | Copper | Boron

Source of Nitrogen + Phosphorous for seed germination & root formation
Source of Nitrogen for basic growth of the plant structure
Source of Potash for roots, cobs and fruit formation
Source of highly soluble calcium/ lime to help in soil neutralization (soil Acidity)
Zinc (An), Copper Cu, Boron(B) that are essential in yield improvement

TOYOTA TSUSHO FERTILIZER AFRICA LTD
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Tel: 020 6917958, 0727 959 950, 0748 812 851
Find us on Facebook: Baraka Fertilizer
Launch of Seed Potato Production Unit at Aberdare Technologies Limited

The Aberdare Technologies Limited (ATL) launched a seed potato production unit on 22nd March, 2019 at ATL, Thuta Farm, Kabati, Muranga County. The greenhouse facilities have a capacity to produce 1.3 million minitubers and 600,000 apical cuttings in one production cycle. The facility is able to produce planting material for over 25 public varieties released by the KALRO including but not limited to: Shangi, Unica, Dutch Robijn, Asante, and many others. More importantly the KEPHIS registered seed merchant has embraced an apical cutting which is a new seed system technology that helps to fasten seed multiplication process. The unit was officially launched by Ms Charity Maina, Research and Development Manager, NPCK who represented Mr Wachira Kaguongo, Chief Executive Officer at NPCK. In her speech she noted ATL investment in the potato sub-sector was timely and will contribute to bridging the gap of shortage of certified seed potato which is a major bottleneck hindering growth of the industry, currently 6,700 tons of certified seed potatoes are produced against an estimated demand of 30,000 tons by 2020. Ms. Maina also reiterated that NPCK is working closely with National government and various key stakeholders to create policies and regulations that will provide an enabling environment favourable for public private partnership investment. In attendance was Mr. Benson Wambugu, Managing Director, ATL and Prof. Peter Kaburu National Secretary, Kenya National Farmers Federation (KENAFF). Other stakeholders present were, representatives of seed multipliers, potato farmers, input and service providers in the potato value chain.

Henry Chemjor, Value Chain Dpt-NPCK

Health Benefits of Potatoes

Potatoes are edible tubers, available worldwide and all year long. They are relatively cheap to grow, rich in nutrients and they can make a delicious meal. The fiber, vitamins, minerals, and phytochemicals it provides can help ward off disease and benefit human health. Some of the health benefits of potatoes include:

- **Bone health** - The iron, phosphorous, calcium, magnesium, and zinc in potatoes all help the body to build and maintain bone structure and strength. Iron and zinc play crucial roles in the production and maturation of collagen - the protein responsible for skin elasticity which also plays a role in joint and bone health. Phosphorus and calcium are both important in bone structure, but it is important to balance the two minerals for proper bone mineralization.

- **Blood pressure** - A low sodium intake is essential for maintaining a healthy blood pressure, but increasing potassium intake may be just as important. Potassium encourages vasodilation, or the widening of the blood vessels which regulates blood pressure.

- **Heart health** - Potatoes contain significant amounts of fiber. Fiber helps lower the total amount of cholesterol in the blood, thereby decreasing the risk of heart disease. Together with potassium, vitamin C and vitamin B6 content, coupled with its lack of cholesterol all support good heart health.

- **Inflammation** - Choline is an important and versatile nutrient that is present in potatoes. It helps with muscle movement, mood, learning, and memory. It also assists in maintaining the structure of cellular membranes, transmitting nerve impulses, absorption of fat and early brain development.

- **Cancer** - Potatoes contain folate. Folate plays a role in DNA synthesis and repair, and so it prevents many types of cancer cells from forming due to mutations in the DNA. Fiber intake from fruits and vegetables like potatoes are associated with a lowered risk of colorectal cancer. Vitamin C and quercetin present in potatoes also function as antioxidants, protecting cells against damage from free radicals.

- **Alleviate Kidney Stones** - Raised uric acid levels in the blood is the main contributor of kidney stones. The hard masses of calcium crystals in urine can create painful stones that are excruciating to pass. Those suffering from kidney stones can find many extra benefits from ingesting the entire potato peel, a rich source of such relieving nutrients as alkaline salts, copper, manganese, potassium, and B-vitamins.

Source: https://www.medicalnewstoday.com/articles/280579.php
2019 POTATO EVENTS - THE EASTERN & CENTRAL POTATO FAIR
National Potato Conference & Regional Fair Exhibitors of 2019

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VIAZI SOKO: A Digital marketing platform for seed and ware potatoes

ABOUT THE PLATFORM
It enables farmers to:
- Query and receive feedback on seed potato information.
- Market potatoes.
- Get frequent advisory message from NPCK and partners.

HOW TO REGISTER
1. Go to your mobile phone messaging service, type: NPCK #REGISTER#Your Name #Your County and send to 22384
   EXAMPLE: NPCK #REGISTER#ESTHER KAMAU #NAKURU

   Note: ● There is a space between NPCK and the first #.
   ● Use at least two of your names separated by a space.

Alternatively use the following in place of ‘register’ : REG, JOIN, JIUNGE ANDIKISHA, INGIA or SHRIRIK.

EXAMPLE: NPCK #ANDIKISHA#ESTHER KAMAU #NAKURU

2. You will receive a feedback confirming your registration “Welcome to NPCK SMS services. Your Account has been created”

   If registration was not successful you will receive an SMS with instructions on how to register

HOW TO QUERY FOR SEED POTATO INFORMATION
1. Go to your mobile phone messaging service and type: NPCK #Seed# Potato Variety and send to 22384
   EXAMPLE: NPCK #SEED#SHANGI
   (Note there is a space between NPCK and the first #)

Alternatively you can use the following in place of SEED: SEEDS, MBEGU, MBENGU, SEEDLINGS, POTATO, QUERY, TAFUTA and SEARCH
EXAMPLE: NPCK #TAFUTA# SHANGI

2. You will receive a reply that will include details of: Seed variety, if seed is certified or an alternative, seed size, amount available in Kgs, price per Kg, seed producing company, its contact number and County.

   2. The coordinator will receive a reply that the group’s stock record has been created and will be valid for a period of two weeks.

   This record is made available to registered potato buyers on the Viaz soko platform who can then place an order for the potatoes.

3. Upon an order placement, the coordinator collects potatoes from the selling members and updates the quantities and prices per Kg in the connected farmer software.

4. The members involved will receive a digital receipt with transaction details and there after M-pesa payment.

   For more details on requirements and procedure contact NPCK marketing department through
   Phone: 0799739578/0712338633
   Email: npck@npck.org

   When a group member is about to harvest, the farmer coordinator will be responsible for uploading the required information as below;

   NPCK #MARKET#POTATO VARIETY #PRICE PER KG#AVAILABLE KG# DAY#MONTH
   send to 22384
   EXAMPLE: NPCK #MARKET#SHANGI#30#5000#15#5

   Note: ● There is a space between NPCK and the first #.
   ● DAY means the harvesting date from 1st to 31st.
   ● Month means harvesting month from 1-12.

   This initiative is partly supported by:
   ● Alliance for a Green Revolution in Africa (AGRA)
   ● Feed the Future Kenya Accelerated Value Chain Development (AVCD) Project, funded by USAID
   ● German Cooperation(GIZ)

HOW TO MARKET WARE POTATO
To market through the platform a farmer should be in a group that has an MOU/AGREEMENT with NPCK. The group will have a farmer coordinator who will market on behalf of the members. However, farmers who attain a production of more than 10 tons per season can market individually through the system.

1. When a group member is about to harvest, the farmer coordinator will be responsible for uploading the required information as below;

   NPCK #MARKET#POTATO VARIETY #PRICE PER KG#AVAILABLE KG# DAY#MONTH
   send to 22384
   EXAMPLE: NPCK #MARKET#SHANGI#30#5000#15#5

   Note: ● There is a space between NPCK and the first #.
   ● DAY means the harvesting date from 1st to 31st.
   ● Month means harvesting month from 1-12.

   Alternatively you can use the following in place of ‘market’ : MARKET, SHANGI, SELL, SIELEKWA, SIELEKWE, MBEU, MBEGU, ANDIKISHA, INGIA or SHRIRIK.

   EXAMPLE: NPCK #MARKET#SHANGI#30#5000#15#5

   Note: ● There is a space between NPCK and the first #.
   ● DAY means the harvesting date from 1st to 31st.
   ● Month means harvesting month from 1-12.
The National Potato Council of Kenya (NPCK) is a Public Private Partnership (PPP) and a multi-stakeholder organization whose responsibility is to help plan, organize, and co-ordinate potato value chain activities and develop the subsector into a robust, competitive, and self-regulating industry. The Potato Council organizational structure enables it to draw synergies from a wide membership, representing all stakeholders and actors in the potato industry.

NPCK Vision Statement
Potato industry is a leading contributor to increased incomes, food security, and improved welfare in Kenya.

NPCK Mission Statement
Coordinate potato sub-sector stakeholders towards development of potato industry’s profitability and livelihoods improvement.

NPCK Objectives
The NPCK Strategic Plan is anchored on six objectives:

1. To contribute in creating an enabling environment for effective and efficient potato value chains for growth and development of a self-regulating potato industry.
2. To help build a cohesive potato industry in order to promote synergies and minimize duplication for efficient use of resources through enhanced public-private partnership.
3. To promote best practices for quality standards, improved yields and enhanced value addition in order to thrive in local, regional, and global markets.
4. To create a platform for information management and capacity building for the various potato value chain actors.
5. To mobilize and effectively manage resources for the growth and stability of the organization and prosperity of the industry.
6. To identify and mainstream crosscutting and emerging issues within the potato industry.

NPCK Services
1. Collect, process and disseminate subsector information
2. Provide an avenue for creating awareness about partners' products and services through NPCK website and publications
3. Offer a platform for networking and business engagements through annual National Potato Conference and trade fair, County trade fairs in potato producing zones, and biannual stakeholders meetings
4. Facilitate development of standardized branded seed and ware potato packaging bags for use by farmers and traders for quality adherence
5. Facilitate market linkages between Potato farmers and the market outlets, and between seed producers and ware potato farmers.
6. Inform policy formulation for the subsector, promote adherence to regulations and adoption of good agricultural practices
7. Lobby and advocacy for supportive policy and legal framework
8. Consultancy services along the potato value chain
9. Training and capacity building of farmers, farmer cooperatives and farmer associations
10. Act as a National platform for planning, organizing, and coordination of all subsector activities

NPCK Membership
NPCK has four membership categories: Platinum, Gold, Silver and Bronze that allows engagement, services and benefits at different levels.

For more details about membership, please follow the link: www.npck.org

NPCK Platinum Members
- UPL
- CORTEVA agriscience

NPCK Gold Members
- Baraka FERTILIZER
- TOYOTA TSUSHO FERTILIZER AFRICA LTD
- YARA

Knowledge grows
A fungicide for control of:
Early & Late blights on Potatoes & Tomatoes
Downy mildew on Onions
Powdery mildew on Snow peas, Sugar snap & Cucurbits
Bean rust, Bean anthracnose & Angular leaf spot on French beans

**Equation® Pro**
FUNGICIDE

**PHI** - Potato: 14 days.
Tomato, Snow peas, Sugar snap, Onion, French bean, Cucurbits: 3 days.

**Application Rates:**
Back pack sprayer – 8g to 10g per 20L of water
Tractor sprayer – 400g per 1000L of water per ha