Mechanization of Potato Farming in Africa

Nyandarua Launches a potato strategy during the County’s Potato Fair

Investment Opportunities in Potato Value Chain

How to Develop Strong Producer Groups

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The Kenya Market Led Horticulture Program, implemented by a consortium led by SNV, the Netherlands Development
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:

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<td>Early main crop suitable as a crispy and ware variety with a good yield and a good heat tolerance.</td>
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<td>Manitou</td>
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<td>Maincrop ware variety with an attractive red skin, a high yield and very suitable for home fries.</td>
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**EDITORIAL**

As we roll out the second issue of the Potato Magazine Kenya, I note with satisfaction that many partners have joined us in changing the fortunes of potato farmers and in the development of this very important subsector. From this partnership, some landmark achievements have been made. This includes, but is not limited to, introduction of many high-performing varieties, the introduction of mechanization and especially in smallholder potato farming in Narok; business engagements between farmers, on the one hand, and buyers, processors, firms involved in control of diseases and pests and potato-related businesses, on the other hand. From the engagements, farmers are starting to reap some benefits, including training on good agricultural practices, access to high-yielding seed varieties as well as viable and accessible options for managing diseases and pests.

However, I note with concern that we are not there yet as far as the introduction of standard packaging of potatoes is concerned. But even as we all wait for the court case against the packing of potatoes in double bags to be concluded, I am happy to note that the initiative in Elgeyo Marakwet aimed at introducing standardized bags has borne some fruits.

By publishing this magazine, NPCK’s main goals is to create awareness about new developments, innovations, the issues that hinder progress in the subsector and the interventions being made by the Council, jointly with its partners and other stakeholders in addressing the challenges facing the subsector.

As the reader will find out from the stories presented, we are yet to comprehensively address the challenges affecting the subsector. This includes lack of appropriate policies, regulations and standards as well as institutional and budgetary support. This is compounded by poor marketing infrastructure, weak breeding programs, inadequacy of seed potato and low adoption of varieties suitable for processing. The challenges have consequently led to low productivity especially in smallholder farms besides reducing the capacity of the potato subsector to address food insecurity as envisaged in the Kenya Vision 2030.

Nevertheless, as the reader will realize, there are indeed determined efforts to address these challenges. The initiatives detailed in the magazine need to be expanded so that the benefits being realized can be enjoyed by stakeholders and especially smallholder farmers who are the primary producers of the crop.

As a multi-stakeholder organization, NPCK’s responsibility is to help plan, organize, and co-ordinate potato value chain activities. I strongly believe that sharing information is one way via which progress can be made in the subsector. In this regard, the magazine has disseminated useful and hands-on information that, I hope, will be of interest to a wide range of players in the entire value chain. Within these pages are news and features on available seed technologies, mechanization of potato farming, business opportunities within the value chain, marketing as well as storage of potatoes.

Lastly, I thank our partners and especially KEPHS, KALRO, the Ministry of Agriculture, Livestock and Fisheries, County governments in Nyandarua, Narok, Bomet, Meru, Elgeyo Marakwet, Nakuru, Nyeri and other potato growing counties who have provided variable support to NPCK’s initiatives. NPCK deeply appreciates the SNV Netherlands Organization and the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH - GIZ for supporting the development, publishing and distribution of the magazine.

Wachira Kaguongo
Chief Executive Officer, National Potato Council of Kenya
Expanding Potato Production Technologies for Increased Incomes in Kenya

By Judith Oyoo, Nancy Ng’ang’a & Moses Nyongesa

The KORO project on International Agriculture (KOPIA) was initiated in 2015 and has partnered with KALRO on a 3-year project with the objective of expanding potato production technologies developed using demonstration plots, field and open days, capacity building training, brochures, books and other promotional materials. The potato production technologies disseminated include the release of commercial potato varieties suitable for different potato growing regions, certification seed, seed saved seed and crop management practices (appropriate spacing, different fertilizer regimes, weeding and spraying). In addition, the KOPIA-supported project bought certified seed from KALRO seed unit and the KOPIA-supported project bought certified seed from KALRO seed unit and distributed to groups for bulking on half acre plots.

Following this, the project has done 19 demonstrations in the last 3 years, trained 430 farmers directly through the demos at village level, field days and open days and more than 1,000 in directly through the multiplier effect. Yields have increased by 500% as a result of using high quality seed and proven potato production practices. For instance, farmers who used to harvest 20 bags (i.e. extended bag approximately 110 kg) before the onset of project, were able to get 100 bags per acre after inception of the project, 5 times more!

This has increased household incomes in equal margins leading farmers to investments in other areas such as paying school fees for their children, leasing more land to increase production and construction of a DLS store in the homes. The communities surrounding the demo area have benefited from the lessons given by farmer members and from distribution of high quality seed, with majority acknowledging the positive change they see on their crop. The KOPIA supported project has also developed a Potato Handbook and brochures entitled ‘Improved Potato yield for higher Yields and increased household incomes’ which has been distributed freely to stakeholders.

Towards strengthening knowledge-sharing among potato growers within the project and promoting adult learning/ peer to peer learning, farmers were taken on an exchange visit where farmers from Nakuru and Nyanza counties were taken to KOPIA-supported demo fields in Kiambu while farmers from Kibera were taken to Nakuru County. This led to learning and knowledge sharing especially on market linkages and access.

Farmers from Kiambu County were able to learn that farmers from Nakuru County had formed a co-operative union for potato growers and that the majority of them were members. They also learned that the latter have a ware potato store and were in the process of finalizing signing of contract with processors in Nairobi. These milestones awakened these farmers on the profitability of the potato production business.

Farmer groups involved in KOPIA supported project have confidence of training their fellow farmers on improved potato production technologies. They have also joined hand to be able to acquire certified seed as compared to the degenerated farm-saved seed. Lastly, they have realized that certified seed give higher yields of better quality which consequently makes the potato production ventures more profitable.

ADC Enhances Farmers’ Access to Certified Seed

The Agricultural Development Corporation (ADC) began production of seed potatoes through a hydroponics system in 2015 at the ADC Srikria farm. Relying on cocopeat as the substrate, the system enables the production of numerous quantities of mini-tubers per unit area particularly from popular and preferred varieties while maximizing on use of space. In 2010, ADC set up an aeroponics system under the 3G CIP project. The system produces seed potatoes known as mini-tubers whose size ranges from 10mm to 20mm. The system maintains the roots of the plant by suspending them in the air and in conditions of total darkness while nutrient-enriched water is sprayed on them periodically. Roots grow in the air, and this ensures that the tubers do not come into contacts with soil pathogens. This enables production per plant to increase considerably. Over time, the ADC has increased the quantity of each variety by 200% by employing this system.

The Corporation’s laboratory in Molo, Nakuru County is used to produce disease-free plants, sourced from the Tigoni branch of the Kenya Agriculture and Livestock Research Organization (KALRO) or at the PQS-CIP-managed laboratories at Muguga area in Kiambu County. ADC began with just 5 varieties, in 2010 - Dutch Robijn, Tigoni, Asante, Kenya Mpya and Kenya Sherekea. The main operation was rapid production for use in the conventional green houses. Today the facility boosts of up to 17 varieties including the popular Shangi, Kenya Karibu, Unica, Arka among others as well as improved technical expertise and expansion. The operations have expanded to involve testing and eradication of viruses via a hot box eradication system. The varieties are produced between 70 to 15 days in a growth room following which they are hardened for another seven days in a screen house. Once strong shoots and roots are established, the plants are transferred to green house beds operating under an aeroponics and hydroponic systems. The entire production period takes roughly 120 days.

This revolutionary system of production of certified potato seed denotes ADC’s turnaround from relying on traditional, conventional means and has aided in addressing the persistent shortage of basic seed for planting in Kenyan farms. Difficult as it was in the beginning, the ADC management addressed this by establishing an effective tissue culture laboratory for the production of mini-tuber seed potato. There is also a conventional system producing mini-tubers using sterilized soil in pots. Once plants have formed stable roots, they are planted in the trough that is about 15cm deep. Like aeroponics a nutrient solution is introduced to allow tubers to grow using drip lines or misters. Moulding is done when plants are one month old. The system is automated and will require regular pH checks of the solution and moisture levels which ultimately determine the irrigation frequency. The harvest from the conventional soil-based mini-tuber production usually gives between 10 and 20 smaller tubers while the cocopeat hydroponics systems result in larger number of mini-tubers averaging (20 to 30) depending on variety. The harvesting of seed potato is done after 75 to 90 days depending on variety. The resultant mini-tubers are of high quality as they are grown in a controlled, disease-free environment. The seeds are graded according to size, counted and packed (in 5kg, 10kg, 20kg, and 50kg batches) and prepared for storage or sprouting. Once proper sprouting is achieved, these mini-tubers or first-generation seed becomes breeder seed with good agricultural practice a step towards certified seed access to farmers.

The process is highly specialized and requires technical expertise and infrastructure. Currently, ADC has been able to increase the area under mini-tuber/breeder seed by 200% by employing this technique.

More information on certified seed potato production guidelines, how to place orders at ADC etc. in subsequent editions.
Willy Bett, Cabinet Secretary, Ministry of Agriculture livestock and fisheries (MoALF) that challenges in the seed potato system, programme under vision 2030. However, for Willy Bett, the Cabinet Secretary, Ministry of potato value chains through innovations and theme of Optimizing opportunities in the National Potato Conference had the Organisation’s (KALRO) head office in Nairobi, Kenya Agricultural and Livestock Research hundreds of stakeholders in the crop’s value chains two-day conference that brought together showcasing technologies and innovations and to provide platforms for stakeholders. The conference aimed at creating awareness and demonstrate Potato technologies and innovations and to provide a networking platform for stakeholders. Over 1,000 participants attended and 26 exhibitors drawn from the entire potato value chain through innovations and partnerships. It was officially opened by Mr Willy Bett, the Cabinet Secretary, Ministry of Agriculture, Livestock and Fisheries (MoALF) who called on Kenyans to diversify their diet by not only consuming maize but also other foodstuffs such as potatoes. He noted that the crop had a key role in solving food crisis in the country and that the government had come up with a strategic food security programme under vision 2030. However, for potato to take its rightful place, the CS said that challenges in the seed potato system, storage and marketing of potatoes ought to be tackled through the adoption of simple and practical solutions. “Potato production needs to be a profitable and viable enterprise for our farmers” he said. The CS called for more partnerships in the key sectors and encouraged the youth to invest in the potato sector by taking advantage of NPCK’s SMS-based seed and ware potato marketing platform.

The conference aimed at creating awareness and demonstrate Potato technologies and innovations and to provide a networking platform for stakeholders. Over 1,000 participants attended and 26 exhibitors drawn from the entire potato value chain attended the Conference. Besides Safaricom, other sponsors included the Deutsche Gesellschaft Für Internationale Zusammenarbeit GIZ, Irish Embassy, the Kenya- Netherlands seed Potato development project, MoALF and KALRO. Other sponsors included the Alliance for Green Revolution in Africa (AGRA), International Potato Center (CIP), African Green Revolution Fund (AGRF), the Netherlands Organisation, and Safaricom. It is spearheading the Connected Farmer engagement forum.

Addressing the gathering, the Director General of KALRO commended the NPCK for rolling out activities geared towards boosting fortunes in the potato subsector. More than 80 business leaders from across the potato value chain attended. The conference gave them an opportunity to connect with key influencers in the potato subsector, build relationship with other stakeholders and benefit from new ideas and trends. The guest speaker, Mr Kimani Rugendo, the Managing Director of Kevian Kenya Ltd, enumerated the investment opportunities in the potato value chain and noted that the potato crop was an important source of livelihood for over 2.7 million people and contributed over US$500 million (Kshs 50 billion) to the economy. He urged participants to take advantage of the available opportunities so that the country can exploit the full potential of the crop. The conference had two plenary sessions, an evening networking session, farmer engagement forums and exhibitions during which different topics were discussed. The evening networking session was entirely supported by the Safaricom limited, who is spearheading the Connected Farmer solution. This is a mobile application tool used to register, profile and communicate with farmers; purchase, record and make payments of potatoes via the mobile money transfer system (MPESA) and to link farmers to markets. The portal also aids in tracking the movement of produce from the farm to off-takers, tracks inputs stock items (input loans) and enables farmers’ queries to be responded to. Participants observed that storage, marketing and processing were some of the weakest links in the crop’s value chain. Other challenges cited include overreliance on rain-fed farming, lack of adequate infrastructure and services, lack of extension services, and weak marketing structures. To address these challenges, they recommended the construction of warehouses with composite paneling for storage of seed potato, putting up diffuse light stores with a membrane netting to keep out insects and low-cost stores such as the ones being developed by the embassy of Ireland through the IFOC. Participants also called for experimentation of store designs such as the use of straw, which has a high insulating factor. Such a model exists at Kiama Farm in Meru County. As far as marketing is concerned, participants recommended that the law on pricing by weight and 50-kg maximum packing bags be fast-tracked. They noted that the Agriculture and Livestock CS has powers to gazette standards for selling of any crop in any sector. However, farmers and other stakeholders must be involved in developing the standards. By a show of hands, all the farmers present unanimously voted that they wanted to be selling potatoes in the standard 50 kg bags and that pricing should be by weight.

NPCK’s Vazia Soko Platform was launched during the conference. This is an online SMS-based technology for marketing both seed and ware potatoes in a virtual market place. The platform was developed through a partnership between NPCK and CIP through Feed the future -Accelerated Value Chain Development (AVCD) project with technical support from Safaricom. It is administered by the NPCK which ensures smooth and efficient interactions of all the three actors and servicing of both seed and ware potato orders is efficiently managed. The farmers present reacted positively to the rolling out of the platform which they said makes them visible and connects them to the market directly. They said that this saves them from being exploited by intermediaries (or brokers).

NPCK has collaborated with farmers, Safaricom, CIP, Agra, Grow Africa and other partners to manage and run the vazi soko platform. The platform will enable farmers to get technical information and market their potatoes. During the conference, over 400 farmers drawn from the 13 main potato-growing counties were trained on how to use it as well as Safaricom’s ‘connected farmer’ application. The event had a matchmaking session that enabled different stakeholders to interact with farmers on products and services, technologies, innovations and support. Each of the 45-minute sessions had at least 200 participants. Exhibitors took the opportunity to display different technologies and innovations. Among the exhibitors present were chemical companies, seed producers, soil testing companies, Fertilizers Companies and others involved in organic farming. There were also firms involved in agricultural mechanization, insurance, finance, mobile technologies, potato breeding as well as regulatory bodies.

A section of farmers consenting on a review to the potato marketing and packaging standards

Some of the exhibitions during the 2017 conference

Rosa Manyonge from NPCK training farmers on Vazia Soko platform during the conference

A section of participants during the conference

National Potato Conference Offered Opportunities for Stakeholder Interactions

A part of its efforts to transform the potato industry, the National Potato Council of Kenya (NPCK) has established forums for information sharing, showcasing technologies and innovations and for business-to-business interaction. In May 2017, the Council organized a two-day conference that brought together hundreds of stakeholders in the crop’s value chain. Held on May 24th and 25th at the Kenya Agricultural and Livestock Research Organisation’s (KALRO) head office in Nairobi, the National Potato Conference had the theme of Optimizing technologies and innovations. The event had a matchmaking session that enabled different stakeholders to interact with farmers on products and services, technologies, innovations and support. Each of the 45-minute sessions had at least 200 participants. Exhibitors took the opportunity to display different technologies and innovations. Among the exhibitors present were chemical companies, seed producers, soil testing companies, Fertilizers Companies and others involved in organic farming. There were also firms involved in agricultural mechanization, insurance, finance, mobile technologies, potato breeding as well as regulatory bodies.
KEPHIS releases certified potato varieties important for food security & economic growth

Regarded as Kenya’s broad basket, Trans-Nzoia County is mainly known for cultivation of maize, Kenya’s top staple food. However, maize production in the area and in other counties has been under threat following an upsurge of pests and diseases. This includes armyworm infestation that now affects many counties as well as the maize lethal disease that affected the crop a few years ago.

It is against this background that KEPHIS and potato breeders decided to promote the production of potato to increase food availability. Since 2003, KEPHIS has collaborated with local and international breeders to make available for multiplication, 52 potato varieties. These include Ambition, Laura, Lady Amariilla, Derby, Markies, Sagitta, Saviola, Musica, Royal and Jelly. Others are El Laura, Lady Amarilla, Derby, Markies, Sagitta, breeders to make available for multiplication, collaborated with local and international the production of potato to increase and potato breeders decided to promote well as the maize lethal disease that affected in the area and in other counties has been

During a recent potato awareness field day at KEPHIS’ Kitale regional office. KEPHIS MD, Dr Esther Kimani (left) and other stakeholders look on

Potato (Solanum tuberosum L.) is predominantly propagated vegetatively and therefore prone to pests and diseases. This leads to decrease in yields and degeneration during subsequent seed multiplication. It is therefore important for seed potato to be certified through a seed certification program. Such programs are designed and administered to provide reasonable assurances of the quality and health of seed. Seed certification is important in that it ensures reliability and health of the seed produced. It increased yields and quality especially in commercial crops thus contributing to national food and nutrition security. Other benefits include the following:

- Improved household incomes
- Control and management of pests and diseases that limit yields and quality
- Reduces: the use of pesticides and primes the farm for the adoption of integrated Pest management

Distinguishing Certified Seed

Certified seed is graded into different sizes. These include Size 1 (28.0-45.0mm) and Size 2 (46.0-60.0mm) and packed into 50kg bags which are sealed with certification tag bearing details on species, variety category (or class), size, lot number and the date of Sealing.

The use of certified potato seed should be encouraged in Kenya since the crop is a major staple food and is ranked second to maize in terms of utilization.
In Kenya, potatoes are the second major cash crop after maize. The crop is traditionally grown by smallholders in the highland areas. The industry supports a staggering 3.8 million people. Among the reasons for the decline and stagnation of the yields include a decline in soil fertility, a build-up of potato specific diseases and nematodes that affect plant health and production. Potato thrive in deep, loose, well-drained, slightly acidic soil with high organic matter content. When embarking on a potato-growing project it is important to have a full soil health check done; a complete soil analysis to check the soil fertility, a pathology screen to check for soil borne pathogens, and a nematode count to see what nematodes are there. At CropNuts, we offer a special discount for this service for potato growers.

This season, farmers in Bomet and Kaptagat areas have recorded yields of 30-40 ton/ha, a four-fold increase. This was after their soils were analysed; following soil fertility correction recommendations and a proper fertilizer program specifically tailored to what was measured in the soil, and their yield expectations, with properly timed application of fertilizer at critical crop stages. This takes the guess work out of fertilizer application, and reduces over-application and build up of specific plant nutrients in the soil which cause a decline in soil fertility. The knock-on effect is lower cost of farm inputs, healthier plants and less risk to the environment. Every time soil is worked by ploughing or digging, a small amount of organic matter is burnt off. Every time a unit of inorganic fertilizer is used, the soil, a little more organic matter is burnt off. Decline in organic matter levels in farmed soils is a common reason for lower yields. Organic matter is important to maintain a loose crumb structure and for maintaining good, beneficial microbes that help in nutrient re-cycling and nematode and disease reduction. Organic matter should be replaced every crop cycle.

With the soil fertility correction program, farmers are advised on which amendments need to be added and in what amounts. Very often, a farmer will need to add lime to counteract the low soil pH. CropNuts caution against adding lime right before potato crop as it will encourage scab. It is advisable to plan for lime additions during another rotational crop cycle.

Calcium and boron are critical nutrients for determining not only the yield but the final quality, shelf life and nutritional density of the potatoes. Acidic soils, sandy soils, soils with high sodium, soils with low calcium and low boron, drought conditions or over-application of nitrogen and potassium can all reduce calcium and boron uptake. Low calcium and/or boron in the plant will result in hollow brown tubers that taste dreadful and rot quickly.

To grow a nice big healthy potato tuber taste sensational! The tubers are protected by photosynthesis. Large, dark green healthy leaves are needed to optimize converting the sun’s rays into the sugars required to make the starch in the tubers. It is important to have a healthy balance of all the root minerals in the soil to get these big healthy leaves. For successful potato farming, it is important to follow good agricultural practice (GAP), with proper land preparation, certified seed and strict crop rotations.

Testing the soil and following a fact-based approach to feeding your soils can more than double your potato yields. When considering that the input costs for potato farming with regards to seed, fertilizer, water, land preparation, weeding and crop protection work out roughly the same for a good yield and a bad yield, Farmers could easily get an extra 10 ton/ha (clearly seen) with a proper fertilizer program. At a farm-gate price of 35Ksh/kg, your return on the investment of a soil analysis could be higher than 7000%. Not bad at all!

Ruth Vaughan is the Technical Director, CropNuts.

To talk to our agronomists or know more about our special discounted potato soil health package please contact us on support@cropnuts.com.

### Soil health for Profitable Potato Production

**By Ruth Vaughan**

### Campaign for Standard Bags picks steam in Elgeyo Marakwet

**By 2015, Farmers became happier with the prices they got**

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By Ruth Vaughan

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By 2015, Farmers became happier with the prices they got
Kenya-Dutch Potato Initiative Bears Fruits

The public-private partnership programme on seed potatoes fits well into the strategic directions of the Kenyan and Dutch Government, in which Food Security forms one of the central pillars. In addition, involvement of the private sector and the formulation of strategic public-private partnerships are seen as essential for the management and implementation of effective programmes.

Funded by the Dutch government, the programme has led to cooperation between public and private sectors and so far resulted in innovative developments in breeding and variety development, seed potato production and certification, storage, and marketing. The Dutch approach to seed sector development, through worldwide partnerships, provides new insights and knowledge for the sustainable development of seed potato supply systems.

The opportunities for private sector involvement in the seed potato project include the following:

- Supply of variety potatoes seed (basic seed) for further multiplication in Kenya and especially varieties that are suitable for different purposes such as fresh marketing, processing to crisp, French fries and other uses;
- Supply of other inputs such as crop protection chemicals, seed treatment, and fertilizers;
- Supplying machinery and equipment for seed and ware potato production at different scales of production;
- Providing handling and storage facilities at different scales and volume levels;
- Providing training support for professional use of sophisticated machinery and facilities;
- Supplying equipment and support to potato processing initiatives including systems for year-round supply of ware potatoes;
- Capacity building in all areas of the supply chain including crop management, post-harvest transport, marketing, retailing, and;
- Providing support to government programmes related to phytosanitary services, food safety and environmental issues.

The first phase of the initiative run between mid-2011 and 2012 and focused on establishing formal collaborations between Dutch and Kenyan public and private sector stakeholders. The project encouraged Dutch potato companies to invest in the Kenyan seed potato market and to establish the import requirements from the Kenyan Plant Health Inspectorate Services (KEPHIS). Kenya and the Netherlands signed an agreement that paved the way for the importation of Dutch seed potatoes. Different seed potato varieties of Dutch companies were registered in Kenya bringing the total to 18. A number of demonstrations were organized in all potato growing counties. By the end of 2013, a total of 740 farmers participated in the demonstration.

Two stakeholder meetings were organized in Nairobi drawing in key stakeholders engaged in all potato growing counties by Kenya Highland Seed Potato Project (KHSP) in collaboration with KEPHIS. Two potato varieties were approved for production. In 2014, phytosanitary courses by NVWA/NK together with KEPHIS were organized in Nairobi bringing the total to 18. A number of demonstrations were organized in all potato growing counties.

In 2016, investment in enhancing the capacity of KEPHIS in potato pests and diseases diagnostics, management of import, field inspection and certification continued. The testing and registration of new Dutch potato varieties for ware and processing purposes also continued; currently 34 varieties have been registered. Efforts were also made to link Dutch and Kenyan seed potato-related business interests through trade missions, business match-making, and information sharing. At the same time, capacity building of medium to large size seed growers was conducted to enhance seed multiplication and related agribusiness skills. Lastly, research and demonstrations on adaptability of Dutch varieties, agronomic practices, mechanization and disease control was conducted that contributed to seed potato information dissemination, stakeholder engagement and sector coordination.

Phase 3 of the programme will be running from July 2016 to July 2019. It is aimed at creating a conducive business climate for the development of the seed potato sector in Kenya. The programme has seen significant investments by seed potato multipliers in seed potato importation and multiplication. It has also led to an expansion of land under potato production and construction of seed potato stores to ensure consistent supply of seed to farmers and in mechanization. Ware potato farmers have also invested in certified seed; small scale farm machines and stores. Crop protection companies have come up with new solutions for managing diseases and pests; appropriate potato products have been developed; expanded markets; investments in potato processing and products.

Partners in the project include Dutch seed potato companies, Universities, Kenyan seed and ware potato growers, National and County government, private sector and NGOs. The programme focuses on sustainable potato cultivation, improving potato processing, skills, mechanization and crop protection companies.

Among roots and tubers, potato is a major source of sustenance in Sub-Saharan Africa (SSA) and accounts for at least 20% of calories consumed all over the world. In Kenya, most potatoes are used mainly in homemade recipes while about 5% is used for industrial processing into a variety of products.

Many people depend on potato as it provides cheaper source of energy; chips have become major lunch time meals while chips is a cheaper snacks option. As a major staple, the contribution of potato to food security of Kenyan population cannot be overemphasized. Due to short duration required for growth and maturity, the crop can be grown twice each year. An increased production and consumption may lead to less disease burden as compared to maize which is chronically contaminated by aflatoxin that causes cancer.

Potatoes are abundant in vitamin C, a major anti-oxidant that also facilitates iron and other micronutrients absorption in the body. Vitamin C also prevents scurvy which is a common disease afflicting the human skin. In the ranges of 60-120 mg/100g, the levels of vitamin C in potatoes match that of many fruits and vegetables even when subjected to vigorous processing such as frying (that are at least 45%).

Secondly, variation in carbohydrate content is due to variations in dry matter content. This in turn contributes to a range of energy contents with raw potato tubers having lower average energy content (318-334 KJ/100 g) compared to other roots and tubers such as sweet potato (465 KJ/100 g), yam (444 KJ/100 g) and cassava (607 KJ/100 g). However, the energy content is dictated by processing methods. For instance, frying into products such as French fries increases amounts of energy to 776-1200 KJ/100 g mainly attributed to the absorbed oil during frying.

Though limited in crude protein, with an average of 2%, potato protein is highly digestible with high biological value compared to eggs and has high lysine which is limited in cereals. Potato can therefore complement other staples. Potato crude fibre ranges 1.2-5.5% and increases with frying. The total ash content of the Kenyan potato averages 1% in raw tubers being high in fried products. Consumers of potatoes get a number of minerals such as potassium, magnesium, calcium, iron and zinc. With value addition therefore, potatoes can supply good amounts of essential nutrients.

By Dr. George Ooko Abong’

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National Potato Council of Kenya
The expansion of the potato subsector has necessitated the NPCK to adopt the agricultural value chain development approach (AVCD) with aim of developing a vibrant, commercialized and self-sustained sector. AVCD approach, which is adopted by the government and most development organizations in agriculture, has increased the interactions between the actors for the purpose of generating tangible products and benefits. The benefits of these interactions could be weighed between specialization by groups (e.g. production only) vis-a-vis chain integration which takes up more activities such as production, processing and marketing.

A growing sense of interdependence and shared value amongst actors in the potato value chain has led to a rapid shift in how inputs are procured, services acquired, value addition and processing perceived and how marketing is generally done. Consequently, this has led to a farmer-driven demand for inputs and services and a market driven planned production and feedback system that defines the future growth of the potato subsector.

Notable linkages between farmers and other actors include contract farming and the development of financial and insurance products tailored for potato production cycle. This also includes seed, fertilizer and agrichemicals. potato producers have taken up extension services to farmer groups in addition to their normal selling. Mechanization has also taken the centre stage in increasing efficiencies at production and ensuring quality is maintained from production to market. Further, group level bulk storage ensures produce aggregation and a steady supply of produce to markets.

### How to Develop Strong Producer Groups

**The group is in Timau area (i.e. Buuri sub-county) of Meru County. It has 150 members who are men and women, with some groups range and religious affiliation.** It is governed by the executive and has two committees: production and marketing. The group has defined its members and is through purchase and ownership of shares and meeting the minimum requirements of being a potato grower. It was initially involved in the development of a tree nursery business but later zeroed in to potato production following the introduction of the ASARECA Project in Timau that brought together actors such as NPCK, MOALF, KALRO and others.

Kirimara group has tackled the same challenges that plague the potato subsector including lack of access to structured and reliable markets, seasonality of production leading to price fluctuations, lack of storage facilities, pest and disease prevalence amongst others. These triggered interventions by group leaders in collaboration with partners from the BDS, MOALF and NPCK. The following were among the things they are doing (were successfully implemented):

1. Strengthening Group membership and governance. As a result, the membership has grown tremendously over the past two years following collective actions such as contract marketing and input procurement as well as incentives such as access to loans against their shares.
2. Skills development for members: According to the group’s chairperson, Mrs. Florence Kinoti, Kirimara group holds regular member learning meetings to change their attitudes, impart skills and build their knowledge. The trainings are farmer-driven and come through need based invitations to visit specific stakeholders within and without Meru at different stages of the potato production cycle. The training sessions are conducted during pre-season planning meetings; mid-season trainings and end-of-season meetings. They include but are not limited to good agricultural practices, marketing using NPCK’s Vizi soko portal, financial and insurance training by Siraji Sacco and slow and renewable energy, every season, has enabled Kirimara to obtain pre-financing for inputs from Siraji Sacco, a micro-finance institution in Meru with recovery being made from payments from Sereni Fries.
3. Access to quality Seed Potato: The forward marketing contract with Sereni Fries prompted the group to search for high-yielding potato varieties from accredited seed producers. During the last season, the group was linked to and collectively procured the Jelka potato variety from Syngenta in Mau Narok, Nakuru County. *This is one of the best varieties for making chips and the yields weren’t disappointing,* says Mrs. Kinoti.
4. Collective procurement of fertilizer, agrichemicals and seed by the group played a crucial role in planning for where to source and how to negotiate for better prices and helped it gain from economies of scale through reduced production costs. The group also managed to get a loan for procuring the inputs which was recovered after harvesting. At the same time the farmers, with support from Toyota Tsusho’s fertilizer company and with the help of the ward agricultural officer, collected soil samples which were sent for analysis at the Crop Nutrition Laboratories. The results helped Toyota Tsusho (makers of Baraka fertilizer) to formulate a fertilizer suitable for the group which was delivered at negotiated factory prices hence reduced cost of production. In addition, the group’s interaction with Syngenta Company during seed potato sourcing built their customer profile to obtain negotiated factory prices for agrichemicals from the company.
5. Access to finance and crop insurance. Officially, Siraji MFI is the group’s financial support provider. Kirimara’s engagement with Siraji’s start when the latter group is in a financial management. This led the group to open a bank account with the company which is used by member’s share and contributions. In addition, members have opened individual accounts with the MFI. Siraji has been pre-financing the group’s procurement of inputs using its market contract as collateral with the money being recovered after harvest and payment from Sereni Fries. In addition, an organization called Acre Africa, an agent of APA Insurance, has partnered with Kirimara group and Siraji Sacco in the provision of crop insurance against risks such as frost damage and uncontrolled pest and disease outbreaks. The insurance cover is valid for the period of the life of the potato stock on the farm and renewable every season. However, not all members have signed up to this package as some believe it will eat into their incomes.

These achievements have been initiated and supported by potato producers, input providers, research and extension service providers (e.g. KALRO, the Agriculture & Livestock Ministry, NGOs etc). Others have been business development service providers (BDS), regulators (e.g KEPHIS, APA, MOALF) and development partners such as GS h, AGRA and others.

A growing number of farmer groups/ cooperatives are adopting the AVCD approach in establishing effective linkages with other actors (see Kirimara story below)

**This story of the Kirimara group shows that the AVCD approach can work to develop commercial and sustainable farmer groups that could contribute to the subsector’s growth. For farmer groups to be strengthened, NPCK proposes the boosting of their technical efficiencies and competitiveness as agribusinesses. There is also a need for enhancing the skills of industry actors to engage more with farmer groups and to expand potato marketing opportunities in the country and through exports.**

This story of the Kirimara group shows that the AVCD approach can work to develop commercial and sustainable farmer groups that could contribute to the subsector’s growth. For farmer groups to be strengthened, NPCK proposes the boosting of their technical efficiencies and competitiveness as agribusinesses. There is also a need for enhancing the skills of industry actors to engage more with farmer groups and to expand potato marketing opportunities in the country and through exports.

**The group has lobbied for land acquisition and co-invested in the construction of potato storage facilities: Kirimara group members have lobbied the county government for a piece of public land for the construction of the group’s potato storage facility. The county government assigned them two acres of the land, which was used to put up the facility with support from the IFDC which co-financed the project. Currently, the group is in the process of land surveying, a legal requirement to obtain a deed of ownership, and plans to fence the area to secure the storage facility.**

**Finally, the group is in the process of negotiating for mechanization services with two service providers, Tinga and Agrimech companies. The objective of mechanization is to reduce cost of labor, ensure potato quality is maintained (i.e. by reducing bruises and cuts) and ensure that over 95% of harvest reaches the market.**

In the experiences of the Kirimara potato growers group, could provide a learning model for farmer groups on how to strengthen their operations, tap into the value chain. It is clear from the group’s experiences that farmers can pool resources, tap opportunities within the value chain and leap from it.
Potato industry’s Contribution to the economy

In Kenya, more than 800,000 farmers grow potatoes. The crop is an important source of livelihood for over 2.7 million people along the potato–value chains and contributes over US$100 million (Ksh10 billion) to the economy.

Investment Potential in the Potato Industry

Despite the high contribution to the Kenyan economy, there are a number of areas in the potato subsector that are not as developed as in countries such as Egypt, South Africa and other developed countries. Currently, productivity levels in Kenya is less than 10 tons/ha which is far below the 40 tons/ha achievable under recommended agronomic practices. With such a low productivity level, farmers are unable to meet the increasing demand for potato caused by expanding cities and rural-to-urban migration. However, due to poor storage facilities and poor harvesting and handling methods, losses amount to over US$130 million (or Ksh13 billion) occur along the value chain every year. In essence, addressing such challenges would translate into realizing the great potential in the industry and hence contribute to wealth creation and food security for the country.

Of critical importance is the improvement in production and use of certified seed, optimal use of inputs, disease control, and improved storage and marketing which can transform the subsector into a more competitive industry. The process of transformation requires farmers to adopt new ways of doing businesses and to be supported by state agencies and other actors. It is also important to forge, promote and strengthen strategic partnerships and investment by key players in the industry. Consumption of potato and potato products has grown more rapidly over time.

Processing of potatoes

Due to poor seed systems and insufficient multiplication, the use of certified seed is below 5% in all the East African countries. Although it is estimated that some 90,000 tons of certified seed potato are required in the region, there is low investment in seed multiplication and in open access to potato varieties.

2. Besides this, the subsector is dominated by smallholder farmers who not only rely on unsuitable cultivars but are also unable to afford the amounts of capital required to raise productivity.

3. There is lack of on-farm storage leading to post-harvest losses, inconsistent supply and price fluctuations. For instance, the prices of potatoes in May were three times those of February.

4. The subsector in the region suffers from limited number of processing facilities despite high demand for processed products. For instance, Uganda and Rwanda have just one modern processing plant each. This is attributed to lack of consistent supply of suitable potato varieties leading to a situation in which the few processors operate at less than 50% of their capacities.

5. Poor transport network and marketing facilities leading to losses and higher retail prices.

6. Inconsistent quality and supply leads to challenges in retailing domestic potato products.

7. Lengthy supply chain adds costs and lowers margins

8. Lack of suitable finance schemes leading to low access and expensive credit within the subsector

9. Inadequate flow of information networking and partnership leading to low commercialization of technologies and innovations

Converting Constraints in the Potato Subsector into Investment Opportunities

1. Due to poor seed systems and insufficient multiplication, the use of certified seed is below 5% in all the East African countries. Although it is estimated that some 90,000 tons of certified seed potato are required in the region, there is low investment in seed multiplication and in open access to potato varieties.

2. Despite the high contribution to the economy, it is an important source of livelihood for 2.7 million people in Kenya.

3. The potato industry has the potential to contribute to the country’s food security.

4. The potato industry has the potential for rapid multiplication methods such as aeroponics, hydroponics and cuttings for public varieties.

5. Development of local seed multipliers and agro-dealers networks

6. Extension of finance for seed and other inputs through processors

7. Training farmers on proper use of fertilizers and storage of potatoes

8. Partnership with KALRO and CIP in multiplying public varieties (that require no royalty payments) to help address the shortage of processing varieties

Fertilizer

Importing or blending affordable fertilizers will increase adoption of fertilizer thus helping overcome high yield gaps in East Africa. Potential investors might consider the following:

- Blending, importation and distribution of suitable fertilizers
- Modernization of distribution
- Financing fertilizer acquisition and crop protection
- Aggregation of the crop through co-operatives and farmer groups to meet the big and growing demand
- Partnering with key players on how to engage organized farmer groups
- Partnering with government, donor and NGOs of extension services

Storage

Proper storage enables the stabilization of farmer incomes, improves predictability of supply for processors, and allows seed to be held until they are required for propagation. Among the options available in this regard include:

- Diffused-light storage for seed and cold storage for ware potato
- Mechanization in handling, grading and sorting
- Development of financing schemes with cooperatives and farmer groups for warehouse receipting systems

Marketing

It is projected that satisfying the current demand for potatoes would end up generating up to US$2.5 billion (Ksh250 billion) in revenue for actors throughout the value chain. The potato sector has attracted significant investment, particularly in processing and retail levels. This includes the expansion of franchise as evident from the new entrants like KFC, Java House and Debounaris while others are preparing to enter the market. At the same time, the region has seen the emergence of new marketing arrangements and platform that require strategic partnerships and support. These include NPCK’s Viazisko, Esoko and Twiga Foods. Through the Viazisko software, NPCK has been working with members of potato consortium and other partners in helping farmer groups and cooperatives to access potato market by linking them to customers through a short message service (SMS) and Connected Farmer Solution. Nevertheless, there are opportunities for contract farming with the emerging organized farmer groups and cooperatives.

5. Processing

The demand for processing potato products, primarily chips and crisps, is increasing rapidly. This demand is currently met by importations of high-priced products. About 80% of the processors are informal who produce low quality products. In this regard, the potential investment opportunities here include the following:

- In reliable and consistent sourcing of quality potatoes to fill capacity gaps of local processors
- Processing of chips, crisps, flakes and starch
- Partnering with seed companies and training organizations to ensure farmers grow required varieties and produce quality potatoes
- Investments in cold storage to maintain a year-round supply of potatoes
- Building relationships with farmer cooperatives and develop out-grower agreements
- Small & Medium Enterprises could partner with research institutions such as KIRDI and financial institutions to help improve their capacity and quality of processing

6. Opportunities in Financing

Financial institutions should develop packages suitable for the industry that could increase lending for the subsector. Credit expansion is needed by farmer groups and cooperatives to enable farmers to access high quality seed; inputs, market and in raising productivity. By partnering with key players, financial institutions can help improve incomes of potato farmers and -by extension- their capacity to repay loans. Lastly, insurance packages are required to help reduce risk which would also boost access to credit.

7. Partnership with key institutions to expand businesses in the subsector Opportunities here include:

- Joining the Potato Consortium to address challenges in the value chain for improved businesses and profitability.
- Entrepreneurs can take advantage of new technologies and innovations from research institutions to expand their business. Such technologies are from KIRDI, KUJET, CIP, KARO etc.
- There are opportunities for fertilizer, crop protection, insurance, finance and other input companies to partner with the Potato consortium in working with organized farmers for aggregated businesses.
Mechanizing Potato Farming in Africa

After some 25 years of applied engineering and agribusiness research, extension services and training of farmers and their supporters, Dr Kaumbutho brought together fellow agricultural engineers, farmers, development partners and hiring of tractor services have again until the following season. These are the migrating tractor-plough owners who move from one place to the others, serving farmers but who are not seen again until the following season. Well aware that Africa needs, 70% more food within the next two decades and that this will come from the majority smallholders, AAL has adopted the concept of Agricultural Mechanization Hubs, a business model that is availing the full range of mechanization services to farmers close to them and along selected crop and livestock value chains. AAL has partnered with farmer entities such as Krima, MT Kenya Buuri Co-op Society and Menyu Potato Processors Co-op Society. Other partners are Kilimo-Hifadhi SACCO, Sereni Fries, SNV (Netherlands Development Organization), FMD/Grimme, NFPC, ARDA, IJDC and Kisima Farm to help mechanize potato farming in Kenya. By its nature, potato is a smallholder crop and despite its increasing importance as a food over maize, potato mechanization is expensive, especially if its full potential and impact on yields per unit of land is to be fully exploited. The game-changer in this endeavor is the financial support of extension service inputs, business case training and establishment of showcase demonstration on farmers’ farms across the Laikipia and Meru region. This support is being provided by the by HortIRIMCET, a programme of SNV. Expansion of this support will see natural growth to other parts of the potato region, continuing to Nyandarua and beyond. Also, by partnering with an Asset Leasing company, AAL is able to absorb all the high capital cost of machinery and concentrate on the core business of professional engineering and management of operations for highest returns on investments for all parties.

Why mechanize potato farming? Potato farmers complain that it is no longer economical to produce the crop. They say that besides the cost of certified seed, they need a batten of some 20 to 40 workers on planting days and a similar number at weeding and harvesting time. Others say that though they have been trained in the importance of investing in certified seed they are not confident that this will result in the expected increase in income as long as they plant at the bottom of the ridge, bury with oxen and harvest with people who cut the potatoes during harvesting. Without access to storage (which is a part and parcel of value-chain mechanization), farmers sell their potatoes at throw-away prices to brokers who make a killing at the market place. Potential investors in potato storage have been discouraged by the poor quality and volumes of harvest. Storage of ware potatoes or processing potatoes arising from smallholder farms is difficult due to varietal and quality variation and inconsistency.

Advantages of ‘holistic and accessible’ potato mechanization:
• Dramatic impact on land and labour productivity:
  - By planting on the ridge on fine tillth, mechanization can quadruple the yields, all other factors remaining the same. Mechanization places all seed at equal depth on uniform soil. This leads to tubers that are closer to equal physical size. The harvester is adjusted according to the placement depth of the planter, to avoid potato that is free of blemish and such that not a single tuber is left in the ground.
  - As an example what 14 women and 4 men can harvest in 4 days can be done with machine in 6 hours and leave a clean and uniform harvest of tubers with no injury. For labour, this works out to Ksh19,000 compared to Ksh3500 by machine (not counting the fee for the workers who may also expect tea with bread, 2 times a day and to carry the cut and damaged produce).
  - Cultural change and advancement impact:
  - Guided mechanization of potato farming under a Hub, influences smallholder farmers to adopt improved cultural practices like soil testing, use of certified seed, fertilizer, irrigation, weeding and spraying. This is especially so when other players in the chain (agronomists, financiers, processors etc.) are part and parcel of the production process.
  - At a cost of about KSh 15,000 per acre (compared to about KSh40,000 per acre using labour) a potato farmer can sit back and watch an AAL Hub fully mechanize her farm. Women are released to do their domestic chores as the upcoming middleclass (telephone) farmer finds solace in offering their land for production under the Hub. In the resulting vibrant rural agribusiness set-up, youth can then be made part of the Hub and gain skills and employment, among other jobs across the value-chain, reducing their urge to migrate to urban centres.

Potato processors will tell you that the greatest shortcoming to their factory capacity utilization is in the seasonal nature of potato harvesting. This utilization can run as low as 10%, and at the same time be unable to cope with the supply of raw material during the harvest period. Along the chain they wish they could obtain good volumes of quality produce with fewer falls in production through the year. With storage and quality a processor may store enough potatoes to last through the 4 months of low supply, between seasons.

Who is Agrimech?
Agrimech is part of the Africa-wide Agricultural Mechanization Consortium, driven by the Africa Union Commission (and FAO) under the label of Sending the Hoe to the Museum! Beginning with the Hub at Kieni/Timau at the boundary between Meru and Laikipia Counties, AAL is systematically establishing hubs in Menyu, Nyandarua, Narok, Usian Gishu and Singida in Tanzania. AAL believes that with accessible holistic mechanization Business Farming in Africa can finally begin.

Dr Pascal G Kaumbutho is the Chairman and Managing Director of Agrimech Africa Ltd
www.agrimechafrica.co.ke
The quality German/Dutch manufactured potato mechanization AAL is introducing her Hubs for modernising potato farming is proven as the most effective in increasing labour efficiency and soil productivity. It is composed of several machines that ensure the finest soil tillage, the most productive seed-bed placement, labour-saving for weeding, spraying and harvest operations. In the order from left to right, shown here is the reversible plough, the fertilizer spreader, the hiller-weeder, the harvester, the Bedder planter and Sprayer. The last picture shows the clean product the machinery leaves behind for the farmer to collect. More advanced machinery can treat the seed as it leaves the machine, bag the potato or convey it to a truck running beside the harvester. Which machinery is selected depends on the farm size and volumes of produce being handled. Post-harvest handling includes cleaning, sorting and grading equipment.

Rooted Apical Cuttings to Boost Potato Seed Systems in Kenya

By Vivian Atakos, Monica Parker & Simon Ndirangu

Seed potato farmers in Kenya’s potato growing regions are adopting a new technology with potential to boost quality seed availability. The farmers are using rooted apical cuttings as starter material for seed production as opposed to certified seed. The cuttings technology has been introduced by the International Potato Center (CIP) through Feed the Future, Kenya Accelerated Value Chain Development (AKVCD) program funded by the United States Agency for International Development (USAID).

A cutting is similar to a nursery-grown seedling except that it is produced through vegetative means and does not originate from a seed. Cuttings are produced from tissue culture plantlets in the screen house, rather than minitubers, and after rooting, are planted in the field. Each cutting produces 7 to 10, and up to 15+ tubers which are multiplied a further season or two, then the harvest is used and/or sold as seed. This means that the seed that farmers buy is high quality seed, equivalent to basic or certified one seed in seed certification systems, and will produce high yielding crops. With seed being available for farmers after two to three field generations of multiplication, seed tubers produced from cuttings are high quality planting material and can be multiplied on farm for a further few seasons without risk of significant seed degeneration.

In Kenya, within one year from planting the initial trial to test rooted cuttings, two private sector enterprises have invested in cuttings and the Kenya Agriculture and Livestock Research Organisation (KALRO Tigoni) seed potato unit has adopted the technology. Also 40 seed multipliers are trialing cuttings produced by the private sector, under project support. After receiving experimental cuttings and witnessing the productivity, they are investing in using rooted cuttings to produce seed.

The Kenya Plant Health Inspectorate Service (KEPHIS), regulating seed certification, has endorsed cuttings and is integrating the technology into seed potato certification protocol currently being finalized. Once the modified protocol is approved by KEPHIS, cuttings will be eligible for seed merchants to use as starter material to produce certified seed.
Key to the success of this technology is building market demand for cuttings, which relies on diversifying end-uses. Currently, the technology targets seed multipliers, but expanding to ware farmers who practice saving seed on farm will increase opportunities for private sector to invest in producing cuttings. The support from this opportunity would tap into projects that have already built the capacity of seed multipliers, and are in the process of licensing them as seed merchants to produce certified seed. This includes potato cooperatives that CIP supported their formation under the AvCD project. Additionally, the project already supports youth groups to develop into small businesses. Investing in rooted cuttings for seed production could be interesting for youth as little land is required, and profit margins are high. Addressing seed shortages for potato in sub-Saharan Africa is key to improving productivity of potato farming systems and resource use efficiency. Limited access to quality seed is largely responsible for the low yields spread across the region amounting to 10–15 t/ha. Using quality seed produced using technology such as apical cuttings therefore has the potential to double, even triple, productivity offering opportunities to meet increasing food needs without increasing land use.

**Potato Processing: How New Holland Chips Ltd Does it**

New Holland Chip Ltd is located at the slopes of Mount Kenya in Nanyuki, Laikipia County. Sitting on 20 hectares, the factory will revolutionize how we see food security in Kenya. It is a privately owned enterprise that is set to mechanize the planting, harvesting, and storage of potatoes to further increase food security. Thus, the company will contribute to the attainment of food security which is one of the pillars set to directly employ 75 people. The building started operations in September 2017 and is made from steel structure with the latest high-tech insulation materials measuring 1,000 kilograms per hour. The chips factory is designed to keep out sucking pests that can introduce viral diseases. Cuttings from the mother plants are harvested, rooted in cocopeat plugs and are generally ready for delivery to clients within four weeks having been grown under a strict hygienic environment. The growing environment and hygiene procedures serve to guarantee quality of cuttings that meet and exceed all KEPHIS requirements for production of clean healthy cuttings. SRK will continue playing its role in supplying clean and healthy rooted cuttings to fulfill seed multipliers demand locally.

Stokman Rozen Kenya Ltd (SRK) is in the second commercial season of producing rooted potato cuttings having been involved in the trial phase with CIP as a partner.

“We are pleased at the current pace that this technology has been introduced, trialed and is fast gaining acceptance by seed producers,” says Simon Ndirangu who works at SRK.

SRK has been in young plants propagation business for the past 20 years, mainly in the flower industry. Recently, the company has chosen to diversify its enterprise to contribute to food security in Kenya and has embraced potato cuttings.

“Backed by experienced staff in one of the best tissue culture laboratories in the country, we can multiply any potato variety that a client would want to produce seed from. At present we have in-vitro plants of the following varieties readily available for cuttings production: Dutch Redskin, Unica, Konjo, Sherereka, Kenya Mpya, Asante and Desirees. We will be introducing Shangi, Lenana, Nyota, Chulu and Wanjiku varieties soon,” notes Simon.

In-vitro mother plants of these varieties are grown in a restricted access net house that is designed to keep out sucking pests that can introduce viral diseases. Cuttings from the mother plants are harvested, rooted in cocopeat plugs and are generally ready for delivery to clients within four weeks having been grown under a strict hygienic environment. The growing environment and hygiene procedures serve to guarantee quality of cuttings that meet and exceed all KEPHIS requirements for production of clean healthy cuttings.

SRK will continue playing its role in supplying clean and healthy rooted cuttings to fulfill seed multipliers demand locally.
The Customer is the King

By Jane Kamau,

I guess that most of us have heard the above saying. But take a moment and reflect on the same as far as the potato sector in Kenya is concerned. Who really is our customer? Depending at what point of the potato value chain one is, the customer may differ but ultimately the customer is one who pays to consume the goods or services on offer. Hence a seed potato company may view the ware potato grower as the customer while the ware potato grower may view the buyer/broker as the customer. But ultimately the ware potato end user is the customer who keeps the value chain wheel rolling.

Kate Zabriskie-Kennedy said, “the customer’s perception is your reality.” This means that for the potato value chain players, the customer’s perception should be the driving force. But is this really the case?

In the recent past, we have seen a grand entry of local supermarkets as well as supermarkets into Kenya. Similarly, local chains have gone out on the wholesale market. This is a threat to local and foreign seed potato producers. The local chains as well as supermarkets into Kenya have not hesitated to demand that for the potato value chain players, the customer’s perception should be the driving force. But is this really the case?

Similarly, local chains have gone out on the wholesale market. This is a threat to local and foreign seed potato producers. The local chains as well as supermarkets into Kenya have not hesitated to demand that for the potato value chain players, the customer’s perception should be the driving force. But is this really the case?

Sources of Certified Seed Potatoes in Kenya

The certification of seed potatoes grown by different merchants and out growers in different parts of the country is solely done by the Kenya Plant Health Inspectorate Service. Currently, such seed varieties may be sourced from growers listed in the table below.

<table>
<thead>
<tr>
<th>MULTIPLIER</th>
<th>VARIETIES</th>
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<tbody>
<tr>
<td>ADC-Masa</td>
<td>Nairobii 0706 835555 Suer Farm Nairobii 0706 186179</td>
</tr>
<tr>
<td>K. Karibu</td>
<td>Konjo</td>
</tr>
<tr>
<td>K. Myra</td>
<td>Asante</td>
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</tbody>
</table>
| A. Seke 
| K. Maxono |
| K. Sifa | Tigoni |

By Jane Kamau, National Potato Council of Kenya

HT Gene Bosh seeds LTD

Kajiado, 0739316993

Agrico East Africa

Nairobi 0722 206179

Maribes

Arrows

Rudolph

Destiny

Ambition

Mamuto

Toluka

Sawola

Fakaka

Caroles

Zafra

Kevea Kenya seeds

Muru, 0705 729735

Tornado

Infinity

Imagin

GTL

Apical stem cuttings

Nairobi, 0722 662037

Dutch Robijn

Shangi

Kanjyo

KALRO-Tigoni

Kiambo-Limuru 0722 691245

Shangi

Tigoni

Lina

K. Karibu

Sherekesa

K. Maxono

Kenya Highland Seeds (Royal seed)

Kenyasi

Sarpa Mira

For more information regarding Potato varieties in Kenya visit www.npck.org and download the potato variety catalogue 2017 edition.

The Development of Seed sector in Ethiopia & Kenya

Potato farmers’ access to inputs in Kenya and Ethiopia is weak while level support given to the farmers is stronger in Kenya than Ethiopia. This was established in a survey carried out to investigate the impact of networks and institutional support in raising the production of seed potato in the two countries. The survey looked at the effectiveness of input market, labour market, capital market and regulatory environment and the perceptions of farmers in the two countries on these matters.

Launched on February 1, 2017, the project was supported by the National Potato Council of Kenya (NPCK) and Vita Ethiopia who aided in the development of the research instruments, data collection and validation of results. It was funded by the Food and Business Knowledge Platform of the Netherlands.

In Kenya, the researchers sampled 65 respondents in Nairobi, Muru, Nyandarua and Bomet and also interviewed representatives from the National and County governments. Other people interviewed were small-scale seed potato farmers/groups, large-scale seed potato companies, processors, research and education institutes and NGOs. One trader/private extension officer and a representative of the Dutch Consulate were also interviewed.

The sampled group in Ethiopia included 62 respondents from the national and regional levels in Amhara, Southern Nations, Nationalities and People’s Region (SNNPR), and the Oromia Region. These were local seed potato producers (i.e. farmers/groups/cooperatives), private seed potato companies, government officers, research institutes, universities and others. And just like in Kenya, a processor, consultants, input suppliers, NGOs and public authorities constituted the sample. In addition, the survey was administered on 52 seed potato producers, including Dutch breeders.

Once the researchers completed data collection and compiled the findings, they organized two validation workshops on 9th and 15th of September 2017 at the Radboud University in the Netherlands and at the NPCK offices in Nairobi, respectively.

The survey findings reveal stark differences in diversity and strength of connections of seed potato producers in material (seed and other inputs) and non-material (information and service) exchange between Kenya and Ethiopia. Kenya has a larger and more diverse network for non-material exchange than Ethiopia. In contrast, Ethiopia has a larger and more diverse network for the exchange of materials. The highest number of ties in material exchange in Kenya is with input suppliers. This is followed by connections to private breeders. It is interesting to note that there are no material linkages between credit providers and NGOs.

This contrasts with the nature of material ties in Ethiopia where most connections are with the government, followed by those with NGOs that distribute free seeds to farmers. Non-material exchange takes place mainly between NGOs and farmers in Kenya. This is followed by information and services offered by input suppliers, which is a more sustainable model of operation than what is observed in Ethiopia. The conspicuous role of the government and NGOs in material exchange is also evident in non-material exchange in Ethiopia.

The impact of institutional quality and network connections on yield and profits in the seed potato sector demonstrates the significance of institutional quality over and above network linkages. Where institutional conditions (i.e. availability and accessibility to skills development/training, credit and regulatory environment) are functioning effectively, limited number of stakeholders and contacts are sufficient to generate high yields and profits. Once institutional quality is achieved, complementary network connections can enhance efficiency and synergy for higher growth.
The demand for quality ware potatoes is growing. This is largely influenced by the entrance of several international hotel and restaurant chains, changing consumer tastes and preferences and customers’ willingness to pay for quality products. Numerous studies and discussions have shown that the demand for quality ware potatoes by processors of various potato-based products in Kenya has remained largely unmet. There is a wide gap between the quality of potatoes desired by large potato processors and what the farmers supply. This is mainly because farmers produce varieties that processors consider to be of inferior quality. The quality and quantity requirements of ware potato demanded by processors often remain unknown to most of the producers. At the same time, producers lack information and linkages that can help them to achieve the stated requirements. Furthermore, the market demand for processors is often unknown meaning that producers cannot adequately plan production and rely on a trial-and-error approach. Most processors and buyers have no connections with farmers except when buying their produce. This limits the farmer’s commitment to the crop and their potential to take risk with their investment in its production. Farmers also need to be organized so that they can be planning. The Netherlands Development Organisation (SNV) through the Kenya market-led Horticulture Programme, (popularly known as HortIMPACT), has for the last one year worked with smallholder farmers on how to link them to processors. This has the following aims:

- Identifying processors who are willing and have demonstrated interest in working with producer groups;
- Establishing and strengthening the link and operations between the processors and potato producers profiled by HortIMPACT;
- Understanding and documenting the quality and quantity requirements and logistical issues that are important to processors;
- Encourage and facilitate information sharing between processors and producers through buyer-seller meetings, exposure visits, demonstrations, training etc;
- Encourage and facilitate trade relationships between processors and producers including contracting;
- Increase yields and improve the quality of ware potatoes that are supplied to the processors, while introducing grading and quality based pricing to encourage farmers to produce better potatoes.

HortIMPACT’s partnership model incorporates actors at all levels along the value chain - from capacity building, variety seed selection, production and distribution through to potato processing and consumption. The potato business case is designed to increase productivity and create market demand for superior quality ware potatoes that are grown based on their intended uses such as baking, mashing, French fries and crisping. The Kenya Plant Health Inspectorate Services (REPHIS) has released 34 such varieties from the Netherlands, with popular varieties like Markies, Desiree, Rudolph, Challenger, Sagetta, Voyager, Sagitta and Jelly being made available for uptake by the various markets. Markies and Jelly varieties were used in this business case.

The business case was implemented in five counties -Lakipia, Meru, Narok, Bomet and Nyandarua. Some 43 demonstration plots were set up in the five counties and training conducted by trainers from Tymax Agribusiness Solutions Limited who had previously undergone training on potato production at the Thika Horticultural Training Centre.

During the farmer training sessions, farmer groups with an average membership of 30 farmers would gather at the lead farmer’s site to get practical training. This was on soil testing, land preparation, planting, integrated pest management, plant nutrition, crop management, harvesting and marketing. For comparison purposes, a parallel demo plot applying conventional traditional practice was set up alongside the demo site where best practice was applied. However, the inputs used on both plots were the same. Training in each of the five counties eventually culminated in farmers’ field days that drew the interest of many potato farmers in the region. The field day events were organised around one of the nine demo sites in each county where HortIMPACT, in conjunction with Tymax Agribusiness Solutions Limited, has been training potato processors on best practice in ware potato production.

Lessons on the application of best practice in potato production were imparted during the field days when potatoes were harvested from both conventional and best practice plots.

The variety produced in the second season of the project was Markies that is highly suitable for French fries production. The yields from improved practice plots were high, in comparison to yields from plots under conventional farmer practices. The plots where improved practice was applied yielded an average of 15 tons per acre, while fields under conventional farmer practice yielded an average of 7 tons per acre. This is a clear lesson that with soil testing, the right variety, certified seed and good agricultural practice, the yields increase and quality improves.

The use of bio-pest controls from Koppert Biological Solutions Limited was promoted in conjunction with Syngenta E. A, Koppert Biological Solutions Limited and the Agricultural Development Corporation. Buyers and processors were also present during the field days and discussed with the trained farmers on contracting and supply opportunities. These included Sereni Fries Limited, Birkem Greene Limited, GAEA Foods Limited and Mister Potatoes Limited. Other project partners and stakeholders were present at the event to market their products and services. These included Crop Nutrition, Livatly, Agrico E. A, Syngenta E. A, Koppert Biological Solutions Limited and the Agricultural Development Corporation. Equity Bank Ltd and the Co-operative Bank of Kenya were present to offer financial advice to the potato producers.

Further, the training sessions and field days provided a platform for other programmes within SNV to reach out to the farming communities. SNV’s Smart Water for Agriculture have been promoting solar energy irrigation pumps while the Africa Biogas Partnerships Programme (ABPP), a programme implemented by Hivos and SNV, promotes the use of clean renewable energy and clean cooking. The MAMASE project had sent representatives to sensitize farmers on water harvesting and soil conservation methods.

As the production component of the business case comes to an end, HortIMPACT has reached 3,312 potato farmers in the five counties and created several linkages of actors in the value chain.
Nyandarua Launches a Potato Strategy during the County’s Potato Fair

Nyandarua County now has a potato strategy that was launched during the County’s potato trade fair held in March. The strategy outlines the approach the county government would carry out to address challenges in the potato sub-sector in the county between 2017 and 2022.

It also emerged that the County was to benefit from a KSh100 million funding from the European Union to put up a tissue culture laboratory and set to have an aeroponics/hydroponics seed potato production unit and seed potato cold storage facility which are set to be put up in two of the County’s agricultural training Centers.

This was revealed by the former Governor Daniel Wathanka Mwangi during the Trade Fair. The County government, Mr Wathanka said, had procured potato mechanization machinery and equipment such as planters, potato ridgers and diggers. He added that there has been an introduction of new potato varieties (i.e. Rudolf, Destiny, Markies, and Toluca) which are suitable for both table and processing. He added that the County had been encouraging farmers to form groups and cooperative societies to enable them market their produce, access credit and funding. The County had procured 3,330 bags of fertilizer to supplement what had been provided by the national government under the fertilizer subsidy programme.

The Fair was also addressed by Dr. Andrew Timur, Principal Secretary, Livestock, who outlined some of the challenges facing the potato industry and how the National government was addressing them. He pointed out that one of the biggest challenges was insufficient certified seeds in the country only 3% of seed available is certified. Dr Timur said the government welcomes seed companies from outside the country to avail their seeds locally. He however directed that the seed certification process from the relevant regulatory bodies be observed and encouraged public seed producers like KALRO and ADC as well as private seed producers to seek ways of addressing the problem by increasing their output.

According to Dr Timur, the government was addressing potato packaging by coming up with a law that will standardizes potato packaging in the country to 50 KG bags. He urged all stakeholders to participate and contribute to the development of these standards.

Ms. Agatha Thuy, former CEC in the Ministry of Agriculture and Fisheries expressed her pride in the strides the county was making towards uplifting the standards of potato farming in the county. Apart from playing a vital role in organizing the event, she informed the participants that the county government was planning to open three new potato markets (selling point facilities) and one storage facility in the county. She also noted that tests had been carried out on potato farming in the county and the results showed that with good agronomical practices, the county had the potential of increasing its yield to 30 tons per Ha up from the current 10 tons.

She talked of County’s plans to increase the number of farmers doing contractual farming in the county noting the 23,000 farmers who were to sign the letter of intent at the event represented only 25% of the total potato farmer population in the county. Ms. Agatha, however, argued that in as much as the local government and its partners were working hard to improve potato marketing in the county, the farmers had their obligations to fulfil. She asked the farmers to practice good potato farming practices in line with the training they were due to receive from the county. This, she noted will ensure good quality potato produce that will fetch a better market price. She further asked the farmers to keep the end of their bargain upon signing of contractual potato farming agreements by being honest and trustworthy to their contractual partners.

Held at the Oljoro-Orok Agriculture Training Centre, the Fair’s theme was ‘Enhancing technologies in potato value chains for food security and agribusiness.’ It was held with the aims of creating awareness on technologies and innovations, demonstrating the Potato production technologies and for providing a networking platform for service providers and other stakeholders. In addition, the fair was meant to enlighten participants on potato policy, regulations, and standards.

The Fair was sponsored by Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), Ministry of Agriculture Livestock and Fisheries (MoAF), Alliance for Green Revolution in Africa (AGRA), International Potato Center (CIP), Grow Africa, IPM Potato Group and SNV the Netherlands Organisation.

It was attended by over 2,000 people who included farmer representatives from 13 major Potato producing Counties in Kenya, development partners, agricultural input suppliers, financiers, insurance companies, processors, and other potential industry players and actors. The event provided a perfect opportunity for interaction with the industry players for purposes of improving businesses, productivity 40 Companies exhibited during the event. The event gave them an opportunity to display their products, services, and innovations.

AGRA was represented by the Vice President, Mr. Sean de Cleene, who pointed out that AGRA was working together with NPCK to bring together the potato sub-sector players with the aim of making money for the farmers. Mr. Cleene stated that potato farming is a business and not a development program and that AGRA believes that farming has one of the best chances in the county for improving the financial welfare of farmers.

Further, he said that banks were now willing to mortgage potato farming than before. However, Mr. Cleene pointed out that it was necessary that farmers work together in a coordinated groups in order to access these financial services. Apart from the financial institutions, he noted that large multinational farm input providers like Yara, Syngenta and Feil were willing to work with the farmers towards improving their potato farming.

Mr. Cleene reiterated the need for farmers to approach potato farming as a business so that they can benefit.

During the Fair, NPCK facilitated a potato marketing initiative discussion with farmers with the objective of exhibiting business opportunities for farmers and creates business-to-business linkages between producers and processors. The discussion focused on the marketing challenges that potato farmers were facing which included uncertainty of potato market, exploitative by market intermediaries and lack of knowledge on potato market demands. In addition, farmers face challenges related to lack of warehouses, delay of payments from companies that contracted them, low prices offered by contractors and lack of access to financing.

In the marketing model, NPCK acts as a link between the farmers and potato buyers. The need to have farmers organized in potato groups and or co-operatives for linkage purpose was emphasized. Farmers’ enthusiasm on the marketing model led to the registration of some 87 new farmer groups.

To address these challenges, those present expressed the need for farmers to sign contracts with buyers and leaders of farmers to engage their groups for commitment to sell through the cooperatives and for coordinators to know their roles at the group level.

Sereni Fries, Gaea foods and Ogajenyere were buyers who expressed interest in potato marketing contracts. The event also led to the Signing of the letters of intent (LOI) by Potato buyers/processors and specific farmer groups. Read out by Ms. Agatha, the letter was addressed to the Agriculture PS through the CEC. It mentioned the parties involved which included AGRA, Grow Africa, and NPCK and expressed the company’s interest to partner with potato farmers from all over the country starting with Nyandarua and Nakuru counties. A representative from each of the three processing companies signed the LOI and was witnessed by leaders of the farmer groups involved, the governor, the CS, partners and the general public.

The Agricultural Finance Cooperation also signed a letter of intent with the county government expressing its wish to offer loan facilities to potato farmer groups as well as individual farmers in the county.

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**Farmers touring one of the demonstration sites during the Fair**

**Farmer engagement forum facilitated by Rose Manyonge of NPCK**

**Signing of the letter of intent by the processors, financiaiers, farmers and the County government in presence of development partners**
Nutrition-Sensitive Potato Partnership Project (NuSePPP) at a glance

Nutrition-sensitive Potato Partnership Project (NuSePPP) is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) as part of the global program for improving the potato value chain in East Africa. It is implemented in Kenya and Uganda. In Kenya, the project supports smallholder farmers and communities in the counties of Bungoma and Nyandarua in the field of agricultural extension and nutrition advisory. The project targets to improve potato yields for 12,000 farmers and improve the nutritional situation of 15,000 people.

In the field of agricultural extension, one of the main instruments of NuSePPP is farmers’ training through Farmer Field and Business Schools (FFBS). The FFBS are organized such that farmers are placed into groups of 25 people each, selected by the Ward Agricultural Officers (WAOs) of the respective county government, who has undergone a two-week training course on GAP & facilitation skills. The selected farmers then undergo an intense season-long training on GAP and business knowledge. The challenges faced in potato production by the farmers including lack of technical knowledge are discussed and solutions suggested during the training. The 3-months training covers a wide range of topics, per hectare based on a baseline survey conducted by the project currently stands at 8.5 tons, however, previous NuSePPP field trials with high quality seed and good crop management have indicated that the figure can be raised to 25 tons per hectare. So far, more than 1,800 farmers and 80 trainers have been trained over the last 6 months.

Another important component of NuSePPP focuses on advisory for improved nutrition in the frame of community dialogues. 700 Trainers/Community Health Volunteers (CHVs) have been selected and trained and will in turn provide regular advice on nutrition to rural communities over the next 4 years. Since potato is the main food crop for these communities, the nutritional value of potatoes and cooking demonstration of nutritious potato dishes is highlighted during the training. Further topics considered include:

- Nutrition for adolescent girls
- Nutrition for pregnant women
- Nutrient conservation during food preservation and cooking
- Food hygiene and safety
- Kitchen gardening

The choice of the two counties was informed by the abundance of potato in the areas-Nyandarua county for example produces 33% of Kenya’s potatoes, while Mount Elgon Sub-County is another area where potato farming does well in Kenya. A preliminary study by NuSePPP revealed that residents in the potato producing areas use potato as a cash crop, selling all the proceeds to pay school fees and such other expenditures while ignoring its nutritional value. It is important to note that the potato is rich in vitamin C, B1, B4, calcium and protein. The major aim of the FRBS and Community dialogue is therefore to improve incomes for small scale farmers and alleviate negative impacts as a result of malnutrition. Sector coordination is the third intervention area of NuSePPP. This entails coordinating activities such as stakeholder exchange between private and public actors. Already, several actors in the potato subsector have various initiatives in a bid to transform the subsector into a more competitive industry by use of certified seed, optimization of use of inputs, disease control, and improved storage and marketing. Because of the multitude of different initiatives a need has arisen to provide coordination among the actors. NuSePPP is therefore supporting National Potato Council of Kenya (NPC) to provide this coordination function.

The NPC acts as a platform for various development partners and stakeholders at different levels of the value chains to consult, engage, plan and develop strategies for implementation by members. NPC on behalf of NuSePPP has been supporting the National and County governments to develop the National Potato Strategy and the Nyandarua County Potato Strategy. In the frame of NuSePPP a National seed potato committee has been established to develop a roadmap with the target to draw a strategy for overcoming the seed shortage in the country. Further, standardized training guidelines for the industry to train farmers are currently being developed.

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Crop Insurance Gives Farmers a Peace of Mind

By Joseph Chegeh

According the World Bank, agriculture plays a key role in sustaining Kenya’s economy as it contributes about 35% to the GDP. Specifically, potato farming is one of the most productive and lucrative agribusiness ventures in Kenya. However, there are risks involved which can make the investments made by farmers to go up especially if they do not practice smart farming.

Smart farming involves incorporation of several factors of production with an ultimate goal of maximizing production, reducing costs while at the same time mitigating risks. Compromising any of these major factors can create an imbalance in the production system and consequently diminish the returns. Just like any other crop, potato production is highly dependent on genetic composition and the environment. This means the type, source, and the quality of planting material used by a farmer is therefore advisable to use planting material from certified institutions with credible reputations.

The environment refers to the choice of agro-ecological zone where potatoes are grown, planting date, and crop management practices such as crop nutrition, crop rotation, weed management and other recommended practices. Incorporating these basic factors raises the probability of achieving high yields.

However, some factors such as prevailing weather conditions and uncontrollable diseases and pests outbreaks are unpredictable and beyond farmers’ control. Therefore, insurance becomes an ideal risk mitigation tool. Among the major benefits of crop insurance include cushioning farmers against the vagaries of the weather, attaining the peace of mind and giving farmers confidence to invest more in potato production. At the same time, it is easy for farmers who insure their crops to access credit.

There are two types of insurance covers for farmers: Indemnity based crop insurance and Index Based Crop Insurance. The first category compensates farmers in case of a loss based on the ground and verified loss quotations where insurance companies engage a qualified agronomist to monitor the crop and access any loss due to an insured risk. Index Based Crop Insurance relies on a historical set of data such as rainfall data, or crop yield data to predict possible future losses and sets insurable risk limits (Index). This Index is therefore used to monitor insurance contracts during crop production period.

For a customized agriculture insurance quotation, contact ACRE Africa on 0719 249 615 or email us at enquiries@acreAfrica.com.
Kirinyaga Seeds to Begin Selling Improved Seed Potato Varieties in 2018

Kirinyaga Seeds is a joint venture between Kenyan Potato Ltd and IPM Potato Group Ltd from Ireland. In 2015, both companies embarked on setting up a specialised seed potato company following a fast finding visit by Kenyan to the Netherlands and Ireland facilitated by the International Fertilizer Development Centre (IFDC).

From the outset, both companies recognized the challenges in improving the value chain as well as the unique advantages in Kenya that are suitable for producing quality seed potatoes in the highlands. Both companies committed to producing all the seed in Kenya and not to import the seed from Europe.

IPM is an Irish-based company that has been producing and exporting seed potatoes since 1950. Its core business is the exportation of certified seed from Northern Europe to the Middle East, North Africa, Southern Europe. In recent years, IPM has developed locally-licensed seed production with key partners in North America, South Africa, Australia, New Zealand and Chile. With bases of operation in the U.K., Holland, France, Portugal and Brazil, IPM is a leading developer of potato varieties for an ever-changing global potato market.

Kirinyaga produces and markets natural health drinks and fruits as well as organizing the supply chain. In recent years, the company has expanded its operations into soups and food products and intends to establish a potato processing facility in Nairobi. Having grown through the process and challenges of establishing a fruit supply chain for its juice business, Kenyan has already begun to invest in the downstream supply of potatoes by engaging smallholder farmers.

This is aimed at improving the supply of raw products needed to run a modern potato processing plant. The company has gone through a similar process while developing the value chain for Mango fruit and this enabled it to understand the necessity of obtaining the right variety and a guaranteed supply of seed to farmers.

The challenge of establishing the Kirinyaga Seed varieties involved setting up a system and structure to import in-vitro plantlets of the new varieties under the strict control of the Kenya Plant Health Inspectorate Service (KEPHIS). The company approached Stockman Rozen to help with the importation of the plantlets and to begin the production of mini-tubers. After producing the first crop of mini-tubers in 2016, Kirinyaga Seeds went on to multiply G1 seed in the field in order to present the varieties for trials in Kenya.

Conducting trials and entering new varieties for registration is a slow process and requires many hours of labour and oversight. The company was lucky as it got support from the Syngenta Foundation for Sustainable Agriculture over the last three years and which has been crucial in developing and selecting suitable varieties for release in the country.

The goal of any successful breeding program is to find the best adapted variety that will give farmers improved yields and profitability while balancing this with the quality and taste requirements from processors and consumers.

After three years of adaptive research, Kirinyaga Seeds plans to release four new varieties into the market in 2018—Tornado, Fandango, Imagine and Infinity. Tornado is a red skinned variety with long shaped tubers and is ideal for French fries (chips). The variety produces a very high number of large and uniform tubers and has been produced in numerous climatic conditions across the globe where it has consistently proven to be both very resistant to both high temperatures and periods of drought.

Fandango is a high-yielding cream coloured variety that produces large tubers ideal for baking. It is one of the highest yielding varieties produced by the IPM potato breeding program. Its shallow ‘eyes’ and smooth skin are very attractive to consumers.

Infinity is a red-skinned crispy variety that combines high dry matter, good fry colours, round shape and shallow eyes which make the variety ideal for both processors and consumers alike.

Imagine is also a high-yielding variety, producing a very high number of medium-sized tubers. The variety has a very distinctive purple eye over a cream coloured skin. The attractive skin colour and culinary properties combine the variety very appealing to consumers.

After three years of hard work, research and trials, Kirinyaga Seeds will be proud to offer farmers quality certified Kenyan seed potatoes in 2018.
with a history of 85 years of offering soil testing for main agricultural areas of the country and meeting farmers particularly in small packs and quality company has developed a brand name with the Murphy Chemicals (E.A.) Ltd. was established in 2006 and is the oldest agronomic distribution company in the country. Over the years the company has developed a brand name with the farmers particularly in small packs and quality products. The company has one of the largest distribution networks in the country comprising 150 distributors (PDs) and 400 sales locations in the major agricultural areas of the country and reaching the diverse needs of the farmers. The packaging of our products are done in such a way that it minimizes the risk of the seeds of the large scale farmer as well as the small scale farmer with product pack size ranging from 200g to 200kgs.

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Mr. Mungai, SGS

National and County Potato conference and trade fair exhibitors of 2017

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National and County Potato conference and trade fair exhibitors of 2017
National Potato Council of Kenya

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 coordinate potato value chain activities and develop the subsector into a robust, competitive, and self-regulating industry. The 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 stakeholder information
2. Provide an avenue for creating awareness about potato 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. Country trade fairs in potato producing zones, and biannual stakeholders meetings.
4. Facilitate development of standardized potato varieties in potato producing regions.
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.
10. Act as a National platform for planning, organizing, and coordination of all subsector activities.

NPCK Membership
NPCK membership is a collective membership representing all stakeholders and actors in the potato industry.

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8. Consultancy services along the potato value chain.
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For more details about membership, please follow the link: www.npck.org

NPCK Gold Members

The Three NPCK Membership Categories (Gold, Silver and Bronze)

A. Gold
A Gold member will pay an annual subscription of Ksh100,000. This is a premium level membership with the following entitlements:
1. All the benefits of an ordinary member
2. Have their logo appearing on all NPCK publications and communication vehicles, such as website, Potato variety catalogue, Potato Guardian and fliers/brochures
3. Receive 15% discount on any advertisement made through NPCK publications and communication channels such as website, Potato variety catalogue and Potato Guardian
4. Receive 15% discount on fees charged for exhibition and showcasing during National and County trade fairs
5. Members will have access to NPCK database with all subsector statistics, information, publications & innovations

B. Silver
A Silver member will pay an annual subscription of Ksh50,000. This is a medium level membership with the following entitlements:
1. All the benefits of an ordinary member
2. Have their logo appearing on NPCK website
3. Receive 10% discount on advertisement made through NPCK publications and communication channels such as website, Potato variety catalogue and Potato Guardian
4. Receive 10% discount on fees charged for exhibition and showcasing products and services during National and County trade fairs

B. Bronze
A Bronze member will pay a maximum of Ksh12,000 (see application form). This is an ordinary level membership with the following entitlements:
1. Assistance in input sourcing, marketing and linkages
2. Attend subsector meetings
3. Access general subsector information
4. Forward to NPCK business challenges for solution search

Please pay by cheque, bank transfer or deposit money to the following account:
Name: National Potato Council of Kenya
Account: 1001574287, Swiftcode: NINCKENA

NPCK Business Charter

The NPCK’s Revised Business Charter highlights the new areas of business engagement with partners in the potato subsector. The new services provided by the Council will not only help improve business for the actors and partners but will also be a source of income that will help in sustaining the NPCK. The new services provided by the NPCK include:

1. Dissemination of subsector information through NPCK website, biweekly e-newsletter and biannual Potato Guardian.
2. Advertisement of products and services through NPCK website.
3. Organizing the annual National Potato Conference and Trade Fair as well as Trade fairs in the 13 Major Potato producing Counties.
5. Conducting studies in the potato subsector activities.
6. Provide an avenue for creating awareness about potato products and services through NPCK website.
7. Facilitate market linkages between potato farmers and the market outlets, and between seed producers and ware potato farmers.
8. Improve business for processors and other market outlet and create opportunities for financial institutions and other input and service providers.
9. Establish seed inspectorate services. NPCK will post seed inspectors in the 13 major potato producing counties who are trained by KEPHIS and gazetted to help undertake the certification process. This service will ensure timely seed inspections and attract more investment in seed production.
10. Organize regular stakeholder meetings and forums for engagement, search for solutions, business networking, learning and sharing of information.
11. Establish a Resource Centre and an ICT platform that will constitute a reference point for information which is easily accessible.
12. NPCK will increase and improve services to the members through structured membership that allows engagement at different levels.

Membership will be categorized into three levels that will qualify for different levels of services and different discounts for services, namely Gold, Silver and Bronze. However, this does not denote a difference in voting power.
We Grow Better, We Grow More

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.

For more information, call us on our hotline 0716968766/ 0722509830