

## **Review of forage seed regulation framework in Kenya**



**Solomon Mwendia, Uwe Ohmstedt and Michael Peters -June 2020**

## Table of Contents

Introduction .....	4
Overview of Kenyan Seed System .....	4
Informal sector.....	5
Study Methodology .....	5
Forage seed Legal and Regulatory Framework .....	8
Services offered by KEPHIS.....	10
Seed Certification Services.....	10
Procedures for seed certification In Kenya.....	10
The Seed Certification Process.....	11
The Process of seed importation / exportation .....	12
The plant variety protection system in Kenya .....	13
Seed Variety Registration and Release .....	13
Phyto-Sanitary Services .....	14
Plant Quarantine .....	14
Grading and Inspection .....	14
Some regulatory challenges raised by seed stakeholders .....	15
References.....	15

## **List of Abbreviations**

- ASARECA - Agricultural Research in Eastern and Central Africa
- KSC - Kenya Seed Company
- MOALF - Ministry of Agriculture and Livestock Production
- OECD - Organisation for Economic Co-operation and Development
- ISTA - International Seed Testing Association
- EAC - East African Community
- COMESA - Common Market for Eastern and Southern Africa
- KEPHIS - Kenya Plant Health Inspectorate Service
- STAK - Seed Trade Association of Kenya
- NPT - National Performance Trial
- DUS - Distinctiveness, Uniformity and Stability
- NGO – Non-Governmental Organization
- CBO – Community Based Organization
- KALRO – Kenya Agriculture and Livestock Research Organization
- NVRC - National Variety Release Committee
- UPOV - International Union for the Protection of New Varieties of Plants
- IPPC - International Plant Protection Convention
- WTO - World Trade Organisation

## Introduction

There is wide consensus that forage seed, especially seed of improved varieties, can increase agricultural productivity and improving rural livelihoods especially of smallholder dairy farmers. Kenya has been experiencing increasing demand for livestock products mainly due to increase in population and urban migration. Fodder contributes to a huge part of livestock feed which accounts for over 60% of the cost of production in dairy farms (Perfometer 2013). Improved forage seeds and planting material is therefore critical in improving farmers' incomes and nutrition. Forage seed is one of the most critical agricultural input in smallholder dairy production systems (MOALF 2010). Seeds have the greatest potential in determining crop yield (quality & volumes) and therefore determining the productivity of all other farm inputs. Therefore, proper legal and regulatory framework both within Kenya, regionally within EAC and COMESA and internationally plays a crucial role in both access and availability of improved fodder seeds and planting materials. Regional bodies in Africa have been harmonizing seed regulation with an intention of increasing seed business, by harmonizing rules around quality to reduce cost and time associated with seed trade in the region.

Kenya is among ten countries in the Eastern and Central Africa Sub-region that formed the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). This association is managed by a board comprising Directors-General of National Agricultural Research Institutes in the respective countries ([www.asareca.org](http://www.asareca.org)). Within ASARECA's programs is a project on harmonization of seed policies and regulations in the region. The body identifies challenges to movement of seed in this region in the following key areas: variety evaluation, release and registration; certification; phytosanitary measures; import and export; and, plant variety protection. Within the East African Community, Kenya and Uganda subscribe to OECD seed scheme but only Kenya subscribes to ISTA. the two international organizations provide guidelines and rules for seed certification. Sometimes this makes cross-border seed trade difficult as the neighboring countries are not compliant to international seed certification standards (Syngenta Foundation: Working paper: seed policy harmonization in the EAC and COMESA, 2015)

## Overview of Kenyan Seed System

Kenya has a relatively well-developed forage seed system compared to most countries within sub-Saharan Africa. Kenya's seed system comprises of both the formal and informal systems. The formal seed sector comprises of a framework of institutions linked together by their involvement in the multiplication, processing and distribution of certified seed. The formal sector also involves other institutions that play important roles in research, policy and regulation.

The formal seed sector started with the establishment of the Kenya Seed Company (KSC) in 1956 to produce pasture seeds for the colonial settlers (Sikinyi, 2010). The company later diversified into other crops and continued to play a predominant role in the seed sector until the sector was liberalized in mid 1990s. After liberalization of the sector, many private companies entered the formal sector, and as of May 2015 there were 20 registered seed companies (KEPHIS, 2015), many of which are members of the Seed Trade Association of Kenya (STAK). While the ministry of agriculture and livestock production plays critical role in policy, the formal sector is regulated by Kenya Plant Health Inspectorate Services (KEPHIS). Completion of the registration process takes 2 – 3 years and costs US\$ 3,000/variety (Sikinyi, 2010). The process entails two main activities: (a) National Performance Trial (NPT) and (b) Distinctiveness, Uniformity and Stability (DUS) tests. The formal seed sector is responsible for only one third of seed supplied to the sector (Syngenta Foundation: Working paper: seed policy harmonization in the EAC and COMESA, 2015).

**Table 1. Formal seed sector framework**

1. Seed Legislation and macro-economic Policy	<ul style="list-style-type: none"> <li>• Ministry of agriculture &amp; Livestock</li> <li>• Parliament</li> </ul>
2. Agricultural research	<ul style="list-style-type: none"> <li>• KALRO</li> <li>• Universities</li> <li>• Tegemeo</li> </ul>
3. Seed multiplication, Processing, marketing, and Storage	<ul style="list-style-type: none"> <li>• Private/Public registered seed companies to supply certified seeds</li> </ul>
4. Farmer Uptake	<ul style="list-style-type: none"> <li>• Smallholder &amp; middle scale farmers</li> </ul>

*Adapted from Cromwell, Friis-Hansen and Turner, 1992*

### Informal sector

While the formal sector contains all elements of organization and planning, the informal sector still plays the most critical role in supplying smallholder farmers with forage seeds/planting materials. While Kenya has about 112 registered seed companies, only about 9 stock certified forage seeds. These leave a huge gap that is filled by traditional system. The informal sector includes all the other methods such as retaining seed on-farm from previous harvests, farmer-to-farmer seed exchange, seed supply by NGOs, CBOs, farmer groups etc., by which farmers can obtain their forage seed requirements. Although these systems are not formally structured, they account for majority of seed sector activity in Kenya. (Syngenta Foundation: Working paper: seed policy harmonization in the EAC and COMESA, 2015). KALRO and Agricultural Training Centers have been leading in research and distribution of seeds and planting materials of improved forages to farmers in Kenya. Other organizations include CBOs, NGOs, farmer groups etc. Due to lack of control or facilities, it is not always possible to produce high quality seed successfully at farm level, therefore fodder produce with this method is usually of uncertain quality.

### Study Methodology

The information on this report gathered through a desk study of publication and reports on topics of forage seed regulation in Kenya and Sub-Saharan Africa. Additional information was gathered from policy documents of the ministry of agriculture and livestock development, Seed and Plant Variety Act Cap 326 and KEPHIS website.

**Table 2. Institutions Involved in the Forage Seed Subsector**

Institution	Roles
Ministry of Agriculture	<ul style="list-style-type: none"> <li>• Creating and promoting enabling environment for the players in the seed industry through development of effective policies and strategies.</li> <li>• Facilitating research, providing advisory and information services, undertakes review of policies and regulatory framework, and ensures sanitary and phytosanitary measures.</li> <li>• Facilitates collaboration among various stakeholders such as researchers, seed merchants, farmers, NGOs, CBOs and development partners</li> </ul>
Research Institutions	<ul style="list-style-type: none"> <li>• <b>KALRO:</b> Improving resistance Napier grass stunting and head smut disease, trials on different protein sources of fodder</li> <li>• <b>KEFRI:</b> Promoting Agro-forestry trees</li> <li>• <b>CIAT:</b> Promotes using Brachiaria grasses and Panicum as an alternative to Napier grass</li> <li>• <b>ICIPE:</b> Developed the push-pull technology which is a cropping strategy that simultaneously addresses five key constraints of cereal–</li> </ul>

	<p>livestock mixed production systems in Africa – insect pests (stem borers), the parasitic weed <i>Striga</i> (and other weeds), poor soil fertility, soil moisture management, while also addressing the need for high quality animal feed.</p> <ul style="list-style-type: none"> <li>• <b>ICARDA:</b> Promoting rangeland grasses like <i>Cenchrus ssp.</i> for dry areas.</li> <li>• <b>ICRAF:</b> Encourages the use of forage trees that are highly nutritious for livestock, a variety of up to 9 leguminous forage trees, including <i>Calliandra calothyrsus</i>, <i>Sesbania sesban</i>, <i>Leucaena leucocephala</i> and <i>Morus alba</i>.</li> <li>• <b>ILRI:</b> An international institute working on forages in Kenya in different capacities.</li> </ul>
Seed companies	<ul style="list-style-type: none"> <li>• There are over 20 registered seed companies out of which about 9 stock forage seeds</li> <li>• Roles include: <ul style="list-style-type: none"> <li>○ Research, production, processing and marketing of seed</li> <li>○ Import, re-package and market seed</li> <li>○ Import and market seed</li> </ul> </li> </ul>
Donor agencies, NGOs and CBOs	<ul style="list-style-type: none"> <li>• Support systems from both formal and informal systems.</li> <li>• They are also involved in collection, multiplication and distribution of seed.</li> </ul>
The Kenya Plant Health Inspectorate Service (KEPHIS)	<ul style="list-style-type: none"> <li>• KEPHIS was established in 1996 under the State Corporations Act (Cap446) as the National Designated Authority (NDA)</li> <li>• Responsible for among others: <ul style="list-style-type: none"> <li>○ variety evaluation, release, and registration;</li> <li>○ plant variety protection; seed certification; plant protection (Phytosanitary measures).</li> <li>○ Development and implementation of seed standards.</li> <li>○ Implementation of the national policy on introduction and use of genetically modified plant species, insects and microorganisms in Kenya.</li> </ul> </li> </ul>
Plant Breeders Association of Kenya (PBAK):	<ul style="list-style-type: none"> <li>• Support breeder's involvement in the pursuance of intellectual property rights.</li> <li>• Support plant breeders through information, seminars and training</li> <li>• Promote plant breeding and publication of research findings</li> <li>• Advise the Government on matters concerning variety evaluation and release, quality control, revoking of protection, farmers' and breeders' rights, prohibition of unauthorized sale of planting materials; and promote conservation, control of exchange and use of plant genetic resources and other related biodiversity.</li> </ul>
Seed Trade Association of Kenya (STAK)	<ul style="list-style-type: none"> <li>• provide a forum for interaction and information exchange</li> <li>• Interact with the national and international organizations involved in seed activities in order to promote the interests of the seed industry</li> <li>• Promote activities that lead to regulatory harmonization in Kenya, Africa and other regions in order to facilitate movement of seed.</li> <li>• Promote use of improved quality seed by conforming to national and international standards;</li> </ul>

	<ul style="list-style-type: none"> <li>• Promotes self-regulation and liaison with the government on matters affecting the seed industry</li> <li>• Arbitrate in any disputes between members.</li> </ul>
Agents, Sub-agents and Stockist	<ul style="list-style-type: none"> <li>• Disseminators of information on seed.</li> <li>• They also serve as an important channel through which movement of seed can be traced.</li> </ul>

*Adapted from NEADAP Kenya Quick Scan of Kenya's Forage Sub Sector, 2019 and Kenya Seed Policy 2010*



## Forage seed Legal and Regulatory Framework

Seed development in Kenya started in the early 20<sup>th</sup> century and was supported by research on food, industrial and export crops which supplied seed and planting materials. The formal seed sector started by the establishment of Kenya seed company in 1956 to produce pasture seeds for colonial settlers. The industry was partially liberalized in the 1980's and this has seen several companies enter the formal market. However latest survey indicates that out of the 20 registered only about 9 stock forage seeds (*Forage Seeds Survey, SNV 2013*).

At international level there are organizations that handle various issues affecting the world seed industry like give international standards for seeds as indicated in the table below:

Table 3. List of major international organizations involved in seed sector regulations

International Organization	Main Role
The Organization for Economic Cooperation and Development (OECD)	<ul style="list-style-type: none"><li>• Gives technical guidelines on field certification standards.</li></ul>
International Seed Testing Association (ISTA)	<ul style="list-style-type: none"><li>• Provides rules and procedures for seed quality testing.</li></ul>
The International Union for the Protection of New Varieties of Plant (UPOV)	<ul style="list-style-type: none"><li>• Deals with plant breeders rights.</li></ul>
International Seed Federation (ISF)	<ul style="list-style-type: none"><li>• Consist of private sector player and articulates seed trade issues like protection of Intellectual property, Presence of genetically modified seed in conventional seeds and implementation of sanitary and Phytosanitary standards that differ between different countries thereby affecting trade.</li></ul>

*Adapted from Kenya Seed Policy, 2010*

Kenya is a signatory to international treaties and trade related treaties that recognize the need for protection of innovations. At regional level the African seed trade association to which several national seed associations and individual seed breeders are affiliated coordinates the African region. Seed Trade association of Kenya (STAK) is also an affiliate. (Kenya Seed Policy, 2010). Kenya is also among the 10 countries in Eastern and Central region in Africa that formed Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). The association has a board that runs programs that deal in harmonization of seed policies and regulations in the region. (<https://www.asareca.org/>)

Kenya is one of the few African countries recognized for having well developed seed laws and regulatory institutions for a number of years, despite the challenges associated with the content and application of the laws, the degree of regulations, and the capacities of associated implementing institutions (Dwijen, 2006). Currently, Kenya regulates the seed sector through a number of legal instruments, including:

- Seed and Plant Varieties Act (Seed Act; Cap 326, Commencement 1975; last amended 2012; gazetted January 4, 2013).
- Crops Act 2013 (gazette January 25, 2013)
- Plant Protection Act (Cap 324)
- Agriculture, Fisheries, and Food Authority Act 2013 (gazetted January 25, 2013).
- Pest Control Products Act (Cap 346)
- Seeds and Plant Varieties Regulations (Seeds Regulations),
- Seeds and Plant Varieties Regulations (National Performance Trials Regulations)
- Plant Breeder's Rights Regulations

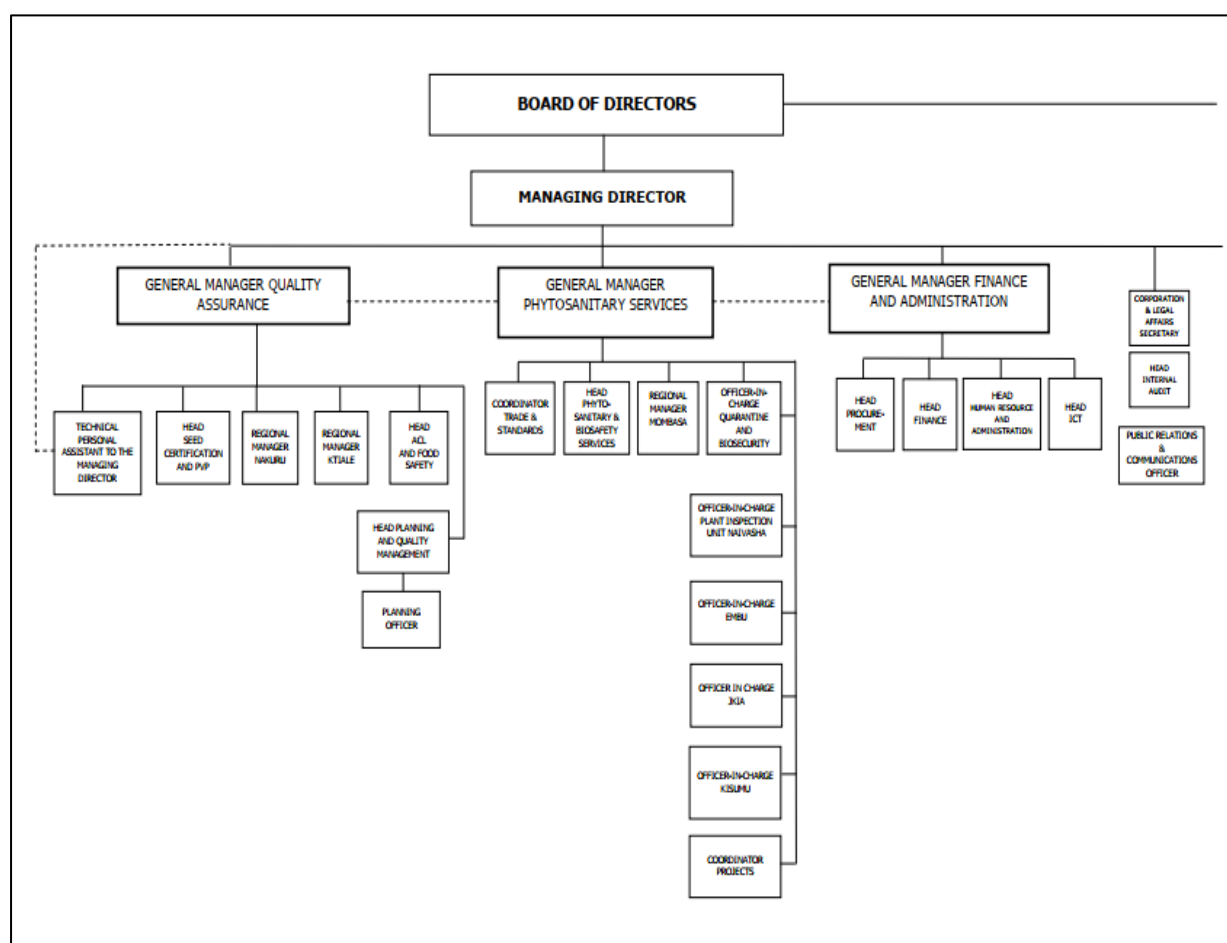


The laws provide a broad framework for governance while regulations contain more specific guidelines for regulatory processes and day to day operations. In general, a country's seed laws govern the processes of variety release, registration, testing, marketing, packaging, and certification (quality control), among other things (Kuhlmann, 2013). A clear and properly designed legal framework on seeds is one of the most important requirements for the development of the agricultural sector, as it facilitates the development of the seed sub-sector and create a suitable environment for seed stockholders (FAO, 2011).

Kenya's seed laws create several institutions which are responsible for implementations of the laws and regulations. At the apex is the ministry of Agriculture, Livestock and Fisheries which has the mandate to formulate, implement and monitor agriculture acts, laws, regulations and policies that support research, promote technology, ensure quality seeds other inputs and control pest. The ministry has the final say on all forage seed varieties that are released to the market.

Under Kenya's seed laws and regulations, different institutions have been established to implement seed laws and regulations. The Ministry of Agriculture, Livestock and Fisheries is mandated to formulate, implement, and monitor agricultural acts, regulations, and policies that support agricultural research, promote technology, ensure quality of seeds and other inputs, and control pests. MOA also has the final approval on all varieties released to market.

KEPHIS is the main regulator for seeds in Kenya. Created in 2012, by an act of parliament the mandate of KEPHIS is "protection of plants, seeds and plant varieties and agricultural produce, to provide that the Service shall be responsible for administering several other written laws and; for matters incidental thereto or connected" The parastatal is governed by a board and offers seed certification services, Phyto-sanitary services and laboratory services (<https://www.kephis.org/index.php/about-us/about-kephis>)



Organization structure of KEPHIS ([www.kephis.org](http://www.kephis.org))

The Seeds and Plant Varieties Act (Cap 326) is the main law used in the regulation of the seed industry in Kenya. The Act of Parliament confers power to regulate transactions in seeds, including provision for the testing and certification of seeds; for the establishment of an index of names of plant varieties; empower the imposition of restriction on the introduction of new varieties; control the importation of seeds; authorize measures to prevent injurious cross-pollination; provides for the grant of proprietary rights to persons breeding or discovering new varieties; and establish a Tribunal to hear appeals and other proceedings to KEPHIS, Ministry and other related institutions. However, some areas of the act like authorization of seed certification and testing services; regional harmonization of seed laws, policies, and regulations; and a thorough review of the legal framework (Ministry of Agriculture, 2010).

## Services offered by KEPHIS

### Seed Certification Services

Seed certification services in Kenya is centrally managed and KEPHIS is the body responsible for offering inspectorate services on all matters related to plant health and quality control of agricultural produce and inputs. The standards for seed certification is stipulated in Seeds Regulation under Cap 326. Inspections both in the field and during processing are undertaken as per these standards.

There was an amendment to the seed act in 2012 which allowed the private sector to participate in inspections. However, this is required regulatory change and is yet to be fully implemented. The amendment allowed KEPHIS to appoint seed inspectors, analysts and plant examiners or authorize any competent private or public persons to perform specified activities as long as that authorization could be withdrawn in case of a misconduct. In Kenya, laboratory seed tests and analysis are carried out according to ISTA standards. One issue raised by Kenyan industry is the capacity of the government to administer such extensive standards. Another frequently raised issue is that the certification standards set by the Seed Regulations are too stringent and do not reflect the reality of the country. The third issue is that regulators have imposed zero tolerance standards to maize lethal necrosis (MLN), which is not listed in the regulations. The bar is sometimes set too high for seed companies to reach. As a result, many seed companies have stopped bulking up seeds in Kenya and have opted for producing seeds in other countries and then importing them into Kenya. (*Syngenta Foundation: Working paper: seed policy harmonization in the EAC and COMESA, 2015*).

### Procedures for seed certification In Kenya

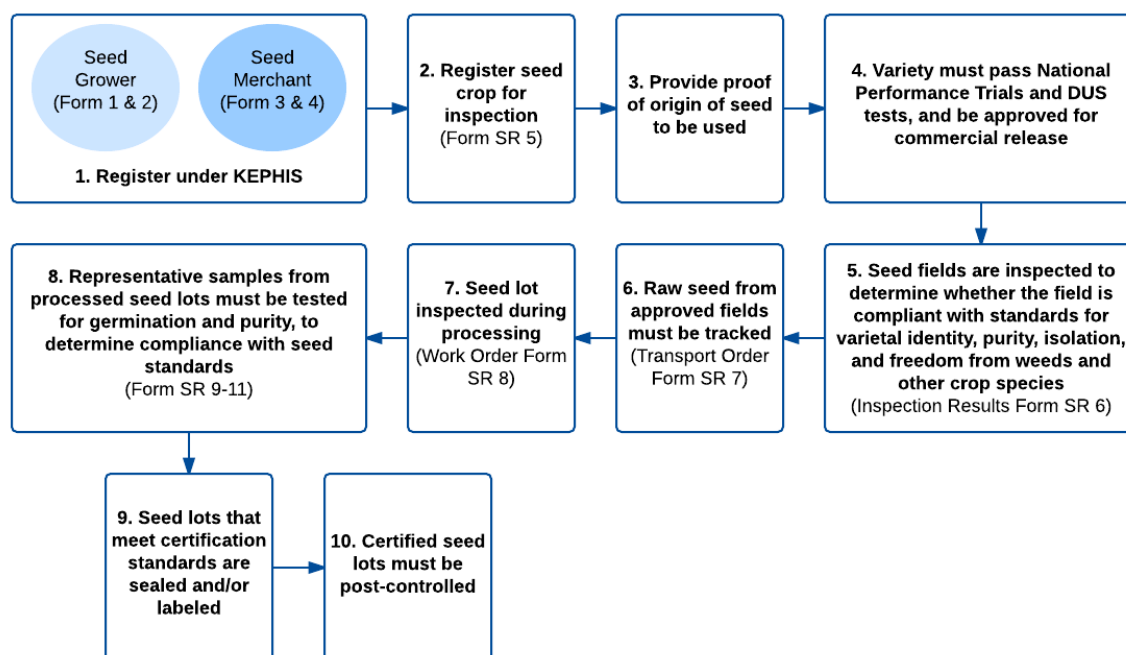
Seed certification is carried out at KEPHIS' four regional offices with the head office in Nairobi and regional offices in Nakuru, Kitale and Mombasa. Seed certification ensures that only high-quality seeds of crop varieties are available for use by farmers.

Table 4. The process for certification

Activity	Remarks
1. Field inspection.	This is the first step and before inspection starts, seed merchants must register field for inspection, proof origin of parental materials of the variety registered for inspection and observe minimum isolation distance. Timely inspection in the fields is conducted to ensure that seed resulting from a crop meant for seed purpose is of the designated variety (trueness to type) and has not been contaminated genetically or physically (varietal purity) beyond certain specific limits. The crop must be healthy and free from diseases (especially seed borne).
2. Seed processing	Seeds from approved fields are harvested and processed to remove undesired contaminants like dirt, broken seeds, weed seeds, broken seeds etc. The seeds are also graded in different sizes and treated with appropriate chemicals.

<b>3. Seed Testing</b>	Laboratory seed testing determines quality parameters such as germination, moisture content, germination capacity and health status.
<b>4. Labelling and sealing</b>	Upon fulfilling all requirements, every seed lot is provided with a seal and a label. Containers are sealed in such a way that the seed cannot be removed and changed without damaging beyond repair either the seal, labelling or the container
<b>5. Post control</b>	Tests designed to ascertain whether the preceding control measures have been effective or not. The tests ensure the characteristics of the varieties remain unchanged in the process of multiplication. In special circumstances, pre control tests are necessary to determine fulfillment of doubted factors.
<b>6. Post certification survey.</b>	To ensure that all is well with the certified seed till planting time, a post certification survey is conducted at the time of planting throughout the country, by the four regional offices of KEPHIS. Samples are taken from seed stockists, farmers planting and at market places. These samples are planted alongside the post control plots and comparisons made. When complaints of low-quality seed arise, such claims are easily verified. All appointed and licensed stockists/sellers must therefore ensure that they only offer for sale certified seed or seed meeting the minimum standards outlined in Cap 326. (All seeds sellers must be registered by KEPHIS).

### The Seed Certification Process



Source: Cap 326, Seed Regulations and KEPHIS "Seed Certification Services". See also Sikinyi, 2010.

Table 5. Classes of certified seed in Kenya

Category	Classes	Color Label
Foundation Seed	Breeder	White
	Pre- basic	White
	Basic	White
Commercialized Seed	Certified first generation	Blue
	Certified second generation	Pink
	Certified third generation	
	Standard seed	Grey

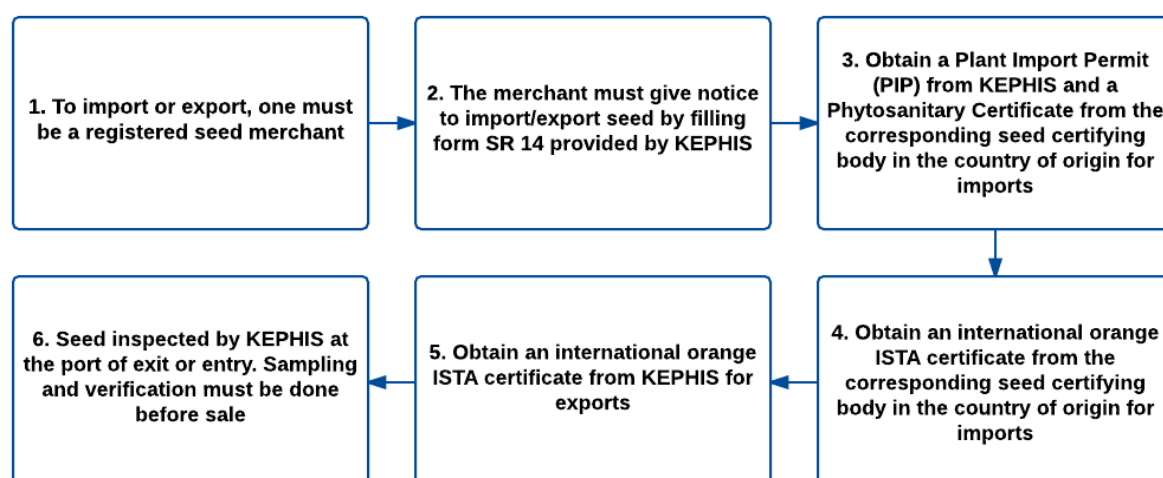
There have been proposals to amend the seed regulations to remove several classes and reduce them to five. This will bring Kenyan regulations into conformity with COMESA regulations of 2014. COMESA does not recognize breeder seed as certified seeds.

### The Process of seed importation / exportation

Anyone who wants to import or export seeds must register with KEPHIS as seed merchants. A seed Import Permit and Plant Import Permit must be obtained before any importation of seed is undertaken. All imported seed must be accompanied by a phytosanitary certificate and an international Seed Testing Association (ISTA). Seeds of all crops are subjected to laboratory quality tests upon arrival and must meet the gazetted minimum standards before being offered for sale. Similarly, all seed for export must meet the gazetted minimum standards and be accompanied by Kenya's Phyto-sanitary certificate and an export permit. To import seed, you should;

- I. Consult the Agricultural Extension Service for advice on the suitability of various crop varieties for their specific regions.
- II. Buy seeds from recognised dealers/agents/stockists who must display their licence and the name of the company they are representing.
- III. Avoid buying seed weighed from opened packets. All seed packets must have the original seal by the seed company and must be properly labelled.
- IV. Upon payment, insist on being issued with an official receipt, which should be retained. The empty seed packets and any other labels accompanying the seed should not be destroyed, as they will help in tracing the source of such seed in case of problems.

Figure 3: Kenya Seed Import and Export Procedures



Source: Syngenta Foundation: Working paper: seed policy harmonization in the EAC and COMESA, 2015.

To qualify for a certificate of registration as a merchant, a firm must prove that 75% of their business is focused on the seed sector. Imports fall into three categories:

- a. low risk permitted imports that are allowed with the appropriate application
- b. Higher risk imports subject to quarantine and risk assessment
- c. Very high-risk imports that are not permitted without the express permission of the Kenyan Standing Technical Committee on Import and Export (Sikinyi, 2010).

KEPHIS have designated plant health clinics, plant quarantine stations, graders, and inspectors to perform a diagnosis of pests and diseases at different entry points. Under the Seed Act, MOA ensures that imported plants, packages, covers, and other materials will not adversely affect the safety of plants in Kenya.

### **The plant variety protection system in Kenya**

The government introduced a PVP system in 1997 and, to instil confidence in foreign breeders, acceded in 1978 to the UPOV Convention. Yet provisions to protect plant varieties were first introduced in Kenya by the Seeds and Plant Varieties Act of 1972, which became operational in 1975. It provides for the grant of proprietary rights to persons having bred or discovered varieties of plants. The Act was revised in 1991, while in 1994 regulations for implementing PVP were introduced. The system came into effect in 1997 (UPOV 2005). Kenya acceded to the 1978 Act of the UPOV Convention on May 13, 1999.

### **Seed Variety Registration and Release**

The Seed and Plant Varieties Act, Cap 326 of the Laws of Kenya, guides the regulatory process of seed release, certification, and production. Variety release procedures are designed to evaluate and regulate the varieties of seed that can be produced and traded. The purpose of this system is to ensure that varieties made available to farmers are superior in their performance and more diverse in their characteristics than existing varieties on the market.

Variety release procedures usually consist of:

- Performance testing through multi- location trials
- Administrative registration procedures.

According to Seeds and Plant Varieties Act (CAP 326), in order to release and register a new seed variety must:

1. Undergo National Performance Trials (NPTs) for at least two seasons be found to be superior in terms of yield or other special attributes. Where a plant variety has already been officially released in any country within the regional economic blocks to which Kenya is a member and has harmonized performance trial regulations (emphasis added), the variety shall undergo performance trials for at least one season in similar agro-ecological zones, provided that an applicant shall provide the data leading to release of the plant variety in that other country
2. Be proven to be distinct, uniform, and stable (DUS) in the essential characteristics
3. Have a valid descriptor for seed certification
4. Have been approved and released by the National Variety Release Committee (NVRC) (Sikinyi, 2010).

Once a variety has been officially released, it is gazetted and entered into the National Variety List. Commercialization can either be done by the applicant or by another who is permitted to multiply varieties under license. NPT (VCU) and DUS testing are officially conducted by KEPHIS, which also organizes meetings for the NPT Technical Committee and the National Variety Release Committee (NVRC) on behalf of the Ministry of Agriculture. KEPHIS maintains a register of released varieties and post-control plots, inspects seed crops, issues labels for certified seed, and regulates seed exports and imports in accordance with the Seeds Act. The DUS and VCU tests are usually carried out for a minimum of two seasons according to UPOV protocols (Kenya has been a UPOV member since 1999). While these tests

are sometimes done concurrently, both market and crop considerations may require that tests are conducted sequentially, and the length of the process will vary according to the crop. In addition to VCU and DUS data, on-farm data must also be submitted by the breeder, which includes initial field performance evaluations and data. After completion of the DUS and VCU tests by KEPHIS, the data is submitted to the National Performance Trials Committee (NPTC) for assessment. KEPHIS chairs the NPTC meetings that include various stakeholders from the seed sector, including STAK. At the end of the meeting, the NPTC makes its recommendation on whether or not the variety should be approved for full release, pre-release, or rejected. The recommendations are forwarded to the NVRC for endorsement and final recommendation and approval by the Ministry of Agriculture (MOA). The released varieties are then announced by the MOA before being entered into the national variety catalogue.

Figure 1 illustrates the variety release process in Kenya.

Maize is the crop with the largest number of varieties registered in Kenya. Besides the national breeding program, a number of seed companies also evaluate and conduct variety trials in various ecologies. When superior varieties with good agronomic traits have been identified from multi-environmental trials, they are included in the NPTs for further evaluation by KEPHIS. KEPHIS will then carry out its own independent VCU and DUS tests of the candidate variety. The NPT trials are largely conducted in rain-fed conditions.

### **Phyto-Sanitary Services**

KEPHIS offers Phyto-sanitary services to ensure that foreign injurious pests, diseases and noxious weeds are not introduced in the country. Kenya has a very stringent plant introduction and certification procedures since 1930's when the plant quarantine services were started in East Africa. Initially Plant quarantine services were conducted under the Ministry of Agriculture. In 1996, a state corporation (Kenya Plant Health Inspectorate Service, KEPHIS) was established to be vigilant for the Government, business sector, scientists and farmers on all matters related to plant health and quality control of agricultural inputs and produce. All Phyto-sanitary measures are based on international standards as in International Plant Protection Convention (IPPC) and World Trade Organisation (WTO) agreement on sanitary and phytosanitary (SPS) regulations and guidelines. The Plant Protection Act (CAP 324), the suppression of Noxious weeds (Cap 325) and the Agricultural produce (Export) Act (Cap 319) provide the legal framework through which the authority carries out phytosanitary regulation service. The operations of the Plant protection Service department are undertaken at KEPHIS Headquarters (Nairobi) and Plant Quarantine station – Muguga. Grading and inspection is done at different entry points: Kenyatta International Airport, Moi International Airport, Mombasa Sea Port, Eldoret Airport and other Border Points.

### **Plant Quarantine**

The station fulfils a very important phase of plant protection programme during the transfer of plant genetic materials by preventing the introduction of plant pest, disease and noxious weeds.

### **Grading and Inspection**

This section offer regulatory service to imported and exported plant materials at exit/entry points. The plant inspectors ensure that the plant produce being exported or imported into the country is of high quality. Phytosanitary certificates are issued for export consignments meeting the quality standards. Plant materials failing to meet the standards are destroyed or prohibited from leaving or entering the country.



### Some regulatory challenges raised by seed stakeholders

1. Counterfeit seed remains a challenge and the penalties for counterfeit seed are too low.
2. The list of seeds subject to mandatory certification is too extensive and that the government lacks the capacity to administer such a broad-ranging seed certification program.
3. The certification standards set by the Seed Regulations are too stringent and do not reflect the reality of the country
4. NPT are mainly carried out in rain fed arears. This means that in case of drought, there is a delay in the whole process.
5. Regulatory framework and processes for release of varieties may vary. For example, under EAC, the NPT regulations state that where a plant variety has been released in one partner state, the Performance trials and stability test should be done at least one season in similar agro-ecological zone as long as data leading to release from the country of release. However, in Kenyan laws, the term at least complicates implementation of this law.
6. There are time lags between variety identification and release. Once the variety has been identified by the breeder, “all varieties submitted for the performance trials shall undergo testing for at least 2 seasons” (National Performance Trials Regulations, 10 (1), 2009). Two seasons of DUS testing are also required, which can sometimes be done concurrently with NPT trials but often add additional time in the release system. The whole process can easily take three to four years, depending upon the type of crop.
7. The criteria that the NPTC uses to make decisions for release does not always reflect market and farmer demand. The yield improvement requirement tends to overshadow other important variety characteristics such as earliness, storability, usability for fodder, disease resistance, etc. The unwritten rule of 10 percent yield increase against commercial checks is too high

### References

- Feeds and plant variety act, revised edition, 2012
- Kenya seed policy 2010
- BLGG Report 3, Kenya feed industry policy and regulatory issues, ABC-TCM, 2013
- White paper, pathways to intensify sustainable forage production in Kenya, Jos Creemers and Alvaro Aranguis, 2019
- Impacts of improved seed policy environment in East and Central Africa, Michael Waithaka, Jonathan Nzuma, Miriam Kyotalimye, Obongo Nyachae, 2011
- The seed sector in developing countries; a framework a framework for performance analysis, Elizabeth Cromwell, Esbern Friis-hansen and Michael Turner
- Working paper: seed policy harmonization in the EAC and COMESA, Syngenta Foundation 2015.