Status of the integrated seed sector in Kenya

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Reflections on the evolution of the integrated seed sector

Development of the seed industry in Kenya started in the early 20th century and was supported by research on food, industrial and export crops, which supplied seeds and planting material. Kenya’s seed industry comprises of the formal and informal seed sectors with the latter accounting for approximately 80% of the seed planted. Between 1998 and 2003, area under seed production averaged 14,600 hectares. Over the same period, local seed production stagnated at 28,000 metric tonnes. At the same time, area under some seed crops has been declining.

The formal seed sector started with the establishment of Kenya Seed Company (KSC) in 1956 in Kitale to produce pasture seed for the colonial settlers. KSC continued to play a predominant role until the industry was liberalized in the mid 1980s to 1996. Several companies entered the formal sector and by 2005, there were 50 registered seed companies largely dealing in seeds of maize, wheat, barley, oats, triticale and sorghum; rapeseed, sunflower; pulses; pastures; horticultural crops and Irish potatoes. Coffee research in Kenya started in 1908. By year 2004, the Pyrethrum Board had seven nurseries spread out in the pyrethrum growing areas to provide planting materials to growers. Tea was introduced in Kenya from India in 1903 and sugarcane was first planted in Kenya in the early 1920s but commercial production started in 1923. The Horticultural Crops Development Authority (HCDA) is charged with registration of fruit tree nurseries after inspection of sites; approval and inspection of sources of seeds and propagation materials; certification of planting materials; restriction and monitoring of planting materials in the country then liaise with KEPHIS for certification.

Current strengths and weaknesses in terms of knowledge and capacity building in plant breeding and seed production

Over the years, KARI has developed varieties of various food crops such as cereals (maize, wheat, sorghums, and millets), pulses and legumes, root and tuber crops, fruits, nuts and vegetables. For these crops, KARI provides breeders’ seed and basic seed for multiplication. However, some crops such as pulses, legumes, millets and sorghums, root crops and some vegetables do not attract investment from the private sector. Consequently, KARI Seed Unit (KSU) was registered in 1999 to also provide planting materials for these crops which are important for food security especially in the arid and semi arid areas.

Initially, rice research was mainly geared towards providing rice seed to national irrigation schemes but the seed is now available to all farmers in the country. In cotton hence farmers have been planting old varieties whose purity has not been maintained. Formal tree seed production started with the inception of the Kenya Forestry Seed Centre as a programme within KEFRI in 1986.

The source and quality of most of the planting materials and seed purchased, multiplied and marketed by the informal seed sector may not be known, yet this is the major source of planting material for the farmers. For example, “road-side” nurseries for forest and fruit trees, farm-saved seed, farmer-to-farmer exchange, local markets, Non Governmental Organizations
(NGOs) and Community Based Organizations (CBOs). Some flower companies also import and/or locally multiply planting material for their own use and sale to other local growers, Relief Agencies supply emergency seed, do not always obtain such planting material from registered seed dealers. However, the informal seed sector may use KEPHIS seed testing services to determine quality status of their seed.

**Drivers that have impacted national food security**

**Ministry of Agriculture** has the major responsibility of creating and promoting an enabling environment for the players in the seed industry through development of effective policies and strategies, facilitates research, provides advisory and information services, undertakes review of policies and regulatory framework, and ensures sanitary and phytosanitary measures. It also facilitates collaboration among various stakeholders such as researchers, seed merchants, farmers, NGOs, CBOs and development partners.

**Research Institutions:** Research institutions involved in development of varieties include KARI for food, horticultural, industrial, pasture and fodder crops; KEFRI for tree seed development; Commodity research institutions such as CRF, PBK, KESREF, TRFK, National Museums of Kenya (NMK) and NIB; universities; seed companies and International Agricultural Research Centres (IARCs).

**Seed companies:** As at 2005, there were 50 registered seed companies in Kenya, who undertake research, production, processing and marketing of seed, import, re-package and market seed.

**Donor Agencies, CBOs and NGOs** deal in seed obtained from registered seed dealers, the informal seed sector and from imports. They are also involved in collection, multiplication and distribution of seed.

**The Kenya Plant Health Inspectorate Service (KEPHIS)** is the National Regulatory Authority responsible for among others: variety evaluation, release, and registration; plant variety protection; seed certification; plant protection (Phytosanitary measures); and development and implementation of seed standards. It is also charged with the implementation of the national policy on introduction and use of genetically modified plant species, insects and microorganisms in Kenya.

**Plant Breeders Association of Kenya (PBAK)** brings together plant breeders to, among others, support their involvement in the pursuance of intellectual property rights among other activities

**Seed Trade Association of Kenya (STAK)** provides a forum for interaction and information exchange among the members; promote development of the national seed with membership standing at twenty, and account for about 90% of the formal seed sector in Kenya.

**Agents, Sub-agents and Stockists** these are outlets and distributors of seed.

**Challenges in the seed industry**

- Insufficient certified seed materials.
- Low adoption of improved seed and complementary technologies.
- Inconsistent legal and regulatory framework
- Inadequate suitable varieties for marginal areas.
Inaccessibility to affordable credit.
Prevalence of adulterated seed in the market.
High cost of seed.
Insufficient technical skills and infrastructure for new technologies
Low funding of research and extension services.
Lack of harmonized seed policies and standards in the region.
Lack of strategic seed reserves.
Lack of a centralized germplasm conservation & utilization centre.

Challenges and Constraints in Research and Extension
The institutions involved in research are poorly coordinated and this has in some cases resulted in conflicts in mandate and duplication of efforts.
There is lack of professionalism by some of the extension service providers.
Variety evaluation and release procedures are perceived to be lengthy and this causes delays in seed users accessing improved varieties.
Gene banks are thinly funded by the Government and are not duplicated. Domestication and commercialisation of indigenous plant species also remains a challenge.
Appropriate mechanisms and capacity to address commercialisation of genetically engineered products have not been put in place.
In Kenya, issues on seed science and technology are not adequately addressed and coordinated.

Kenya is a signatory to several international treaties and conventions affecting the seed industry. However, the capacity to negotiate in these international fora and relevant representation for the benefit of the country is inadequate.

Certification delays lead to increased cost of seed and cost of doing business.

Quality control challenges

Maintenance and breeder seed schemes are constrained by lack of sufficient funds leading to inconsistent and inadequate supply of breeders’ seed to the private sector on timely basis for some crops.

The methods of maintenance and production of breeders’ seed used by different breeders differ even for similar crops and other plant species.

It is difficult to attain the recommended isolation distances for hybrid seed production due to population pressure on land in some seed production regions.

There are no consistent and sustainable modalities for production of certified seeds of open pollinated varieties mostly adapted to drought prone areas.

In the informal seed sector increases prevalence of low quality planting materials in the country leading to reduced productivity and spread of seed-borne pests and diseases.

Protocols of processing and handling seeds of some indigenous forestry species and those with special attributes, including medicinal and aromatic plants, have not been developed.

Most seed growers do not have access to sustainable credit schemes for purchase of farm inputs and services.
Some companies use inappropriate seed processing technologies, which are inefficient and lead to low seed quality, in addition to increasing the cost of seed. Policy Interventions

The marketing requirements and procedures are not in tune with a liberalized market environment and increase the cost of seed.

Inadequate monitoring makes farmers lose confidence in the seed industry. This has led to increased use of uncertified seeds thus compromising food security and agricultural productivity.

There is insufficient information on seed production and trade (i.e. seed quantities, volumes exported or imported) making it difficult to plan especially at times of shortages.

Currently, adoption of improved seed and complementary technologies is low due to inadequate promotion and marketing of improved seed varieties and complementary technologies.

There is limited affordable credit for seed dealers and farmers.

The seed industry in Kenya is liberalized. However the market is mainly dominated by a few players largely dealing in only a few crops and has a disproportionate influence on the pricing of seed.

The perceived low value of some tree seeds has discouraged private seed dealers to undertake marketing of the seeds. This reduces accessibility of tree seeds to the growers.

Some seed stockists have poor storage facilities and may not be conversant with seed storage regulations. This results in rapid deterioration in seed quality.

**Policy interventions:**

Review the relevant Acts and Regulations to conform to a liberalized seed industry.

Harmonize the seed laws and regulations within the EAC and other regional and international trading blocs to increase seed trade.

Specific changes identified for legal and regulatory review

Review the Seeds and Plant Varieties Act (Cap 326) to comprehensively address all legislative issues relating to seeds and plant varieties and harmonize it with other existing related Acts and international agreements where Kenya is signatory.

Review Subsidiary Legislation of the Seeds and Plant Varieties Act (Cap 326) to make provisions for:

Revision of crops under compulsory certification, seed classes and standards to comply with international requirements.

Domestication and operationalization of International Conventions that affect the seed industry for which Kenya is a party.

Payment of royalties to plant breeders.
Amendments to allow for compensation of aggrieved farmers

Ensuring that seed supplied for relief purposes is of acceptable quality and obtained from registered seed dealers

Incorporation of regulations governing forestry seeds and other species including domestication of wild plants

Review of membership of the institutions created by the Seeds and Plant Varieties Act to include stakeholder representation.