The changing nature of Kenya's seed industry sectors

Lessons from the potato seed sector industry

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The African Centre for Biodiversity (ACB) is committed to dismantling inequalities and resisting corporate industrial expansion in Africa’s food and agriculture systems.

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PO Box 29170, Melville 2109, Johannesburg, South Africa. Tel: +27 (0)11 486-1156

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Summary of key issues

Kenya’s seed sector has changed rapidly in the recent past, alongside agriculture industrialisation, resulting in a corporate grab of the seed sector, particularly by foreign seed companies. Kenya’s seed policy development is dominated by the private sector, which is buttressed by public-private partnerships (PPPs) between the CGIAR (formerly the Consultative Group for International Agricultural Research) and its research centres, and by multinational seed companies. These aid the uptake and adoption of corporate seed including genetically modified seed.

These shifts have been aided by, inter alia, the adoption of draconian legislation such as the Seed and Plant Varieties Act (Cap. 326), and the Crops Act of 2013. The Seed and Plant Varieties Act (Cap. 326) considers ‘seed’ as only that which is certified, with increased efforts directed towards the adoption of certified seed by smallholder farmers, as part of the government’s attempt to graduate these farmers into the commercial farming sector. In this paper, we discuss the changing nature of the potato seed sector as a case study, to illustrate how these laws not only denigrate and criminalise smallholder seed systems but have contributed to the creation of tightly controlled commercial value chains underpinned by centralisation and standardisation. These commercial value chains coerce smallholder farmers into becoming commercial farmers, essentially by requiring that they align themselves with registered growers’ associations, to sell their produce at centralised collection points. This entails huge transportation and
packaging costs for the smallholder farmers and places them at the mercy of potato cartels, with whom they must compete on an equal footing. The imposition of strict commercial standards, registration, and other requirements by the government for entry into the potato market entails the incurring of additional exorbitant costs that are out of reach of small-scale farmers, thus allowing only an elite group of players to participate in the value chain.

As a result, foreign entities, and companies, particularly those based in the Global North, and especially from the Netherlands, have eased their way into the potato sector. Here, they accrue massive benefits, as they are allowed to import seed technologies into Kenya that require highly intensive management. Bilateral agreements are taking place between the governments in Kenya and Europe regarding potato crop development, on the pretext of enhancing the uptake of seed technologies by smallholder farmers to increase their productivity. These agreements are further opening markets for European companies. This is evident in the Kenya/Netherlands Seed Potato Development Project, which has facilitated the registration of more than 40 Dutch potato varieties. In the past, these imported varieties, unsuited for the Kenyan context, sparked controversy, as about 500 metric tonnes of potato tubers failed to meet quality tests related to pests and diseases and were rejected by Kenyan regulators (Ayieko et al. 2021).

The consequences of these developments in the seed sector are that local seed varieties developed by national research institutions, and those emanating from farmer-managed seed systems that contribute up to 90% of potato seed, are pushed to the periphery, even where there is no enforcement of criminal sanctions on the sale and exchange of farmer seed. Publicly bred local potato varieties such as Shangi, which are sought after due to their yield, seed availability, affordability, and cooking qualities, are under huge pressure, as foreign potato varieties continue to flood the market and dominate the seed and potato food chain, aided by government seed and agriculture policies. The Kentucky Fried Chicken (KFC) potato chip debacle in January 2022 (see below: ‘The rise of Kenya’s fast-food industry and demand for potato processing varieties’) illustrates Kenya’s dependency on imported potatoes for high-end restaurants and rising foreign fast-food joints, pointing to regulations that favour the importation of potatoes from outside the country to comply with international fast food franchising standards, rather than supporting local smallholder potato farmers. Crucially, this calls into question investments that have been made over the years, and existing PPPs with several foreign governments that the Kenyan government has brokered to ensure the quality of potato seed locally.

The Kenyan government has, thus, embraced a catastrophic agricultural development paradigm, where farmers’ autonomy over their seed and crops is being sacrificed at the altar of the highly regulated commercial agriculture systems. Corporations are benefitting from an inequitable and extractive agricultural system as they flood the market with their seed and crop varieties, with little to no benefits accruing to Kenya’s local economy.
The future for smallholder farmers and their seed and food systems looks bleak. Dependence on the private sector and foreign entities for agricultural development will continue to push smallholder farmers out of agriculture. Political shifts are urgently needed to counter the current situation in Kenya’s seed and agricultural sector. Food movements in the country continue to campaign for the recognition of farmer seed systems and the recognition of farmers’ rights to seed, through discreet seed policy and legislation as part of a just and equitable agriculture and food system.
Context of industrialisation/commercialisation and corporatisation of agriculture in Kenya

Introduction

For several years, a huge emphasis has been placed on agricultural production and productivity as crucial for, *inter alia*, economic transformation, poverty alleviation, and addressing hunger and malnutrition on the African continent. To achieve this, multiple strategies have been put in place to usher in the industrialisation of agriculture and food systems on the continent, spearheaded by the ‘new’ Green Revolution mantra. This linear model of development has promoted an extractive and corporatised agricultural system that continues to gain momentum in Africa. Further entrenching this outdated, ecologically unsustainable, and socially unjust model for agriculture on the continent, African governments are adopting draconian agricultural and seed policies at the national level. These also stem from the African Union’s (AU) defined agenda on agriculture such as the Comprehensive African Agricultural Development Programme (CAADP), including new blueprints on the continent¹ (ACB, 2022) and Agenda 2063: The Africa We Want. These, together with the African Continental Free Trade Area (AfCFTA), represent the key nodes through which corporate takeover of African food and agricultural systems are being orchestrated and anchored (ACB, 2021b).

These policies and blueprints view regional and global agriculture integration and promotion of large-scale farming as central to food systems development. However, this, together with the push for financialisation of agriculture and the food system, continues to result in land and resource grabbing from communities (ACB, 2021b). Currently, the incessant push for simple technological fixes and corporatised, market-based solutions such as the use of synthetic fertiliser, corporate seeds, digitalisation, genetic engineering, and financialisation of small-scale farming/food production have become the crux for revamping African agriculture (ACB, 2021b). These blueprints fail to consider how their combined efforts are deepening inequality, poverty, environmental degradation, and dependency on food imports (ACB, 2021b). Moreover, massive agricultural production on the continent is further driven by the need to feed into agro-processing industries and expand trade through import and export markets as part of the AfCFTA, also emanating from the AU.

Consequently, under the auspices of the Green Revolution model, the push for the adoption of ‘modern inputs’ such as corporate seed and synthetic fertiliser in Africa by, *inter alia*, the Alliance for a Green Revolution in Africa (AGRA) (launched in 2006), has also been largely supported by international

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¹ These include the AU’s common position on transforming food systems (AU-Nepad’s 2022 Year of Nutrition: A Year of Action on Transforming Africa’s Food System), the African Union Green Recovery Action Plan (2021–2027) and the AU’s Seed and Biotechnology Programme (2007)
agriculture research institutions especially those operating under the aegis of the Consultative Group on International Agricultural Research (CGIAR). This has facilitated the corporate expansion in the seed sector in sub-Saharan Africa (SSA) through, inter alia, the creation of an enabling policy environment for research and development, particularly for breeding and production, multiplication, distribution, and marketing of corporate/commercial seed (ACB, 2015).

In Africa, a significant amount of international research and development assistance has been channelled into technical, financial, and institutional support for crop breeding and market development, including input subsidies for increased participation by smallholder farmers in commercial agriculture (Scoones & Thompson, 2011). However, these have largely focused on a few high-yielding commercial crop varieties such as maize. The CGIAR, mostly funded by the Bill and Melinda Gates Foundation (BMGF) — as is the case with AGRA — has entered PPPs with multinational seed companies and national agricultural research systems (NARS) (ACB, 2015). AGRA is a key partner in CGIAR programmes, also entering PPPs together with NARS, and provides funding to some of its centers. For example, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)-led Accelerated Varietal Improvement and Seed Delivery of Legumes and Cereals in Africa (AVISA) project is aimed at the uptake of improved crop varieties (CGIAR, 2020).

AGRA has also channelled its funds towards supporting plant breeding scientists to do 400 PhDs and master’s degrees from various African countries. In addition, it has funded over 1,000 short-term training courses for seed company personnel and plant breeding technicians, who have released over 135 commercial seed varieties of maize, rice, beans, cowpeas, sorghum, groundnuts, cassava, and finger millet crops (AGRA, 2017). Regarding seed production, emphasis has been on private seed production by African seed companies, especially regarding early generation seed (EGS) accessed from the seed industry. This is happening in several African countries, thus moving the historical role and responsibility of seed production from public to private entities and solidifying the privatisation of seed production on the continent.

2. See, for example, support to the International Food Policy Research Institute (IFPRI’s) annual report of 2021
3. These are Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Tanzania, Uganda and Zambia
CGIAR and seed research in Africa

CGIAR – one of the main pioneers of the Green Revolution agenda and the world’s largest global agricultural research network – was founded in 1971 and is the largest recipient of Gates Foundation agricultural grants. During the late 1970s, CGIAR established several nodes in SSA: The International Institute of Tropical Agriculture (IITA) in Ibadan (1967); the West African Rice Development Association (WARDA), renamed as Africa Rice Center in Cotonou (1970); the International Center for Agricultural Research in the Dry Areas (ICARDA) (1977); and the International Council for Research in Agroforestry (ICRAF) in 1978 (Dano, 2007). These were established to promote a one-size-fits-all package for Africa, which failed miserably, as they relied on seed and agrochemicals unsuitable for Africa’s diverse agroecological landscapes and varying climatic conditions (Dano, 2007; Shilomboleni, 2017).

The CGIAR underwent a structural change that merged its 15 centres into one operational entity to oversee the creation of a CGIAR fund, to be housed at the World Bank in Washington D.C. (ACB, 2015). Despite the CGIAR experiencing a funding and credibility crisis in the 1990s, it has been heavily investing in agricultural research in Africa over the years. According to a recent report by the Community Alliance for Global Justice, CGIAR centers received 19.2% percent grants from the BMGF totalling 255.2 million USD, with the majority going to the International Institute of Tropical Agriculture (IITA) – 151.6 million dollars in total, representing 11.4 percent of all agricultural development grant monies that went to Africa – and the International Livestock Research Institute (ILRI) (CAGJ, 2022). In 2019, the CGIAR, coerced by the Gates Foundation, became a single entity known as the One CGIAR, with a centralised board and new agenda (USRTK, 2022). According to IPES-Food, this has exacerbated power imbalances in global agricultural research and development and fails to equip the CGIAR for the urgently needed paradigm shift in food systems (IPES-Food 2020).

Since its inception during the Green Revolution era, some centres of the CGIAR have taken steps towards systemic and rights-based approaches, through participatory plant breeding, supporting farmer-managed seed systems, varietal and species diversification for increased nutrition and resiliency, biological control, and agroforestry (IPES-Food, 2020). This has even included adopting agroecology as part of its research initiatives, particularly under the five environmental health and biodiversity impact areas (CGIAR, 2022). Unfortunately, these developments have not been mainstreamed because of the CGIAR’s failure to adopt a food systems approach, focusing on agroecology, a result of dependence on specific donors (IPES-Food, 2020), such as the US government, the Gates Foundation, and the African Development Bank who favour an extractive industrial Green Revolution model.

It is unlikely that the consolidation towards a One CGIAR will pave the way for context-specific, farmer-led, transdisciplinary research for a resilient and sustainable food system (IPES-Food, 2020). Because of the lack of autonomy of CGIAR’s research nodes, and the presence of a single board, it is more likely to entrench the same old failed narratives of the Green Revolution, favoured by its donors (IPES-Food, 2020).

4. Current GCIAR research initiatives are focused on transforming food, land and water systems in a climate crisis anchored around five impact areas that include: climate adaptation and mitigation; environmental health and biodiversity; gender equality, youth and social inclusion; nutrition, health and food security and poverty reduction, livelihoods and jobs.
Neo-colonial extractive agriculture in Kenya

Kenya makes for an important case study, to illustrate the expansion of a typical neo-colonial extractive industrialised model of agriculture in sub-Saharan Africa. Its capital city, Nairobi, is strategic for the corporates as it is seen as a critical centre for international development infrastructure, and is a gateway to Anglophone Africa and generally, the continent (CAGJ, 2022). As a ‘poster child’ for Africa’s new Green Revolution agenda, it hosts AGRA’s headquarters in Nairobi and that of the African Seed and Trade Association (AFSTA). AFSTA includes several national seed associations and individual seed dealers and coordinates the African seed industry in Africa. It collaborates strongly with the pro-biotechnology industry-aligned African Agricultural Technology Foundation (AATF), also headquartered in Nairobi, among others of similar orientation, while supporting several PPPs seeking to build a strong commercial seed sector. Together, this cabal, in which AGRA and the AATF are hugely funded by the Gates Foundation, presents a formidable lobby group to hugely influence political decision-making in Kenya, especially for the entry of the private sector into agriculture markets. The cabal has been able to influence and shape agricultural policies that are key for the uptake of corporate seeds, pesticides, and synthetic fertilisers.

Changing agricultural policy landscape in Kenya in the last decade

During the last decade, Kenya’s agricultural sector has undergone massive policy and institutional changes. Since 2010, after the promulgation of the new Constitution, which provides for the devolution of agricultural functions to counties (Ayieko et al., 2021; Munyi, 2019), and amid an imminent push for the adoption of the Green Revolution, there has been a series of policy initiatives aimed at shaping Kenya’s agriculture into a ‘modern and commercial’ sector. Smallholder farmers and their farming systems have been particularly singled out for ‘graduation’ into commercial farmers. The agriculture and seed sector policies and plans are mostly anchored in Kenya’s Vision 2030 – a development blueprint covering the period from 2008 to 2030, aimed at transitioning the country to a newly industrialising ‘middle income country’ by 2030. In terms of its Vision 2030, agriculture has been earmarked as a key sector under the economic pillar to contribute to its goals. The First Medium Term Plan (2008–2012) and the current, third, five-year implementation, through Medium Term Plan III 2018–2022 (MTP III), outline several key flagship projects on agriculture5 (GoK, 2021a).

Other key industrialisation plans include the Agricultural Sector Development Strategy (ASDS) 2009–2020, which domesticates the Comprehensive African Agriculture Development Programme (CAADP) of the AU; the

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5. These are: Fertiliser Subsidy Programme; Food and Nutrition Security Programme; Livestock Production Programme; Value Chain Support Programme; Youth and Women Empowerment in Modern Agriculture Programme; Research and Capacity Building Programme; Crop Diversification Programme; Coastal Disease Free Zone Programme; e and e the Strategic Food Reserve Programme, among others.
Big 4 Agenda 2017–2022; the Agricultural Sector Transformation and Growth Strategy (ASTGS) 2019–2029, also anchored on CAADP and the Sustainable Development Goals (SDGs); and the National Agriculture Investment Plan (2019–2024) – a five-year plan under the 10-year ASTGS.

These have culminated in the newly adopted National Agriculture Policy of 2021, the Kenya Agricultural Sector Extension Policy 2022, and the National Agriculture Research System Policy 2021, among others. These instruments have been earmarked as key for the implementation of the country’s agricultural development agenda and signify massive changes in the seed and agricultural landscape for years to come. Specifically, the National Agriculture policy of 2021 outlines many guiding principles, including a market-oriented and modern technology-driven agricultural economy, PPPs, utilisation of modern science, and indigenous knowledge and resources (GoK, 2021a). The National Agriculture Research System Policy of 2021 is particularly worrisome, as it openly promotes the use of modern biotechnology from public-private research in crop breeding, development, and management.

Thus, the promotion of more PPPs and an agricultural sector driven by the private sector are hallmarks of Kenya’s agriculture development agenda. Smallholder farmers will eventually end up being the casualties in this whole system, pushed to the margins, in an agricultural system that is entrenching a highly extractive and inequitable seed and food system, while favouring corporations. These policies, combined with already existing draconian legislation regulating the seed sector, will have devastating impacts on the smallholder producers in Kenya and their autonomy, biodiversity and ecology, and farming and agricultural systems in the country, as is further discussed in the paper.
Agriculture in Kenya – highlights

Agriculture is key to Kenya’s economy and contributes over 31.3% of the country’s gross domestic product (GDP). It employs directly and indirectly over 80% of Kenya’s rural workforce and provides more than 15.5% of formal employment (GoK, 2021a) and more than 60% of informal employment (GoK, 2021b). Most of Kenya’s land (85%) lies in arid and semi-arid areas (GoK, 2021a). At present, there are a total of 4.5 million smallholder producers in Kenya, including 3.5 million crop farmers; 600,000 pastoralists; and 130,000 fisherfolks (GoK, 2019a). With crops being a greater contributor to the sector, industrial crops such as tea, coffee, sugarcane, cotton, sunflower, pyrethrum, barley, tobacco, sisal, coconut, and bixa – some of which were introduced during the colonial era – contribute up to 70% of the agriculture GDP, while food crops contribute 32% and 0.5% of export earnings (GoK, 2021a). Important food crops in Kenya are maize, wheat, rice, potatoes, green grams, and beans (AFA, 2022). Maize is the principal staple food of Kenya, grown on 90% of all the farms, while the common bean and Irish potatoes are the most important legumes and tuber crops respectively (AFA, 2022). Despite this, the country still relies on food aid from the World Food Programme (WFP) due to high incidences of food insecurity in the country (WFP, 2022). The WFP provides school meals for children in arid and semi-arid regions of Northern Kenya and in slum areas for pregnant and nursing women of vulnerable groups and provides food assistance to refugees living in large camps in Southern Kenya (Christinck et al., 2018).
Kenya’s seed sector

Kenya’s seed sector comprises two categories of seed systems – the formal and the farmer managed seed systems (FMSS). FMSS represent about 90% of the seed used by farmers (Njagi, 2022), while 22% comprises certified seed sold by the formal seed sector (Mabaya et al., 2020). Seed aid (mainly maize, beans, and other pulses and vegetables) also forms part of the seed distribution network in the country and is usually undertaken by seed companies in cooperation with local government authorities or non-governmental organisations (NGOs) already engaged in distributing other social welfare relief supplies (Christinck et al., 2018). The formal seed sector has a structured and regulated value chain to produce, process, and distribute commercially certified seed varieties (Mabaya et al., 2020).

The development of the seed industry in Kenya started in the early 20th century, when it was focused principally on research and development to supply seeds and planting material for food, industrial and export crops (GoK, 2010). Kenya’s history regarding science-based plant breeding dates to the 1950s when key food crops such as maize and potato were given priority and research stations for seed breeding were established. The Kenya Seed Company (KSC) – the oldest registered seed company in the country – is a state corporation that was established in 1956 (GoK, 2010) to produce pasture seed for colonial settlers, up until the mid-1980s. Hybrid maize varieties were first introduced in Kenya in the 1960s, produced by the KSC (ACB, 2015), and presently, KSC controls an estimated 70% to 80% of the maize seed market share (Ayieko et al., 2021). However, even with the increased presence and activity of other seed companies over the years, their presence and market shares are limited, compared to those of the KSC (Christinck et al., 2018).

Liberalisation of the seed industry in the 1980s and 1990s saw an increase in the number of seed companies (up to 50), dealing with cereals (maize, wheat, barley, oats, triticale, and sorghum), oil crops (sunflower, rapeseed), pulses, pastures, horticultural crops, and Irish potatoes (GoK, 2010). By the end of 2018, there were 143 registered seed companies in Kenya (Waithaka, 2018).

Both local and foreign seed companies play a role in seed research, breeding, multiplication, and trade and marketing of corporate/commercial seed (GoK, 2010). Multi-national agrochemical/seed/biotech companies such as Bayer East Africa, Syngenta, and Corteva Agriscience operate under the umbrella of the Seed Traders Association of Kenya (STAK) registered by the Kenya Plant Health and Inspectorate Services (KEPHIS) to produce, process and/or market seed in Kenya. STAK plays a huge role in influencing political decision-making in promoting the interests and representing the voice of the private seed sector and currently has 43 registered members.6

6. https://members.stak.or.ke/members
Role of CGAIR centres in spearheading extractive genetic engineering projects

The lifting of the 10-year-old ban on the 3rd of October 2022, on the use of GM food in the country, which was purported to solve food security challenges and drought in the country, has been met with outrage from the Kenyan public and civil society organisations (Langat, 2022). Food movements have opposed this move by the government, citing the lack of public participation, and raising concerns about the risks posed to human health, the environment, and society (Ngotho, 2022). However, the ban has done very little in the past decade to stave off GM research in Kenya, as field trials for several crops ⁸ have been ongoing since 2010. Lead players for contained use and field trials have been CGIAR’s International Livestock Research Institute (ILRI), registered in Kenya, and KALRO (NBA, 2022), in collaboration with multinational seed and agrochemical corporations. With the lifting of the ban, several projects that had stalled, such as the Water Efficient Maize for Africa (WEMA) project, rebranded as TELA, which will most likely be resuscitated, with additional grants from the Gates Foundation. With policies overtly promoting PPPs regarding R&D in crop breeding, Kenya is bound to see more money pumped into PPPs for the uptake of GM seeds in the future, including those genetically engineered using new genome editing techniques.

Seed breeding/research and development

Agricultural research in Kenya is largely carried out by the Kenya Agricultural Research and Livestock Organisation (KALRO),⁷ which was established in 2013 under the KALRO Act. It was previously known as KARI, a semi-autonomous government institution, established in 1979 under the Science and Technology Act (Cap 250) (GoK, 2021b). KALRO was merged with KARI, the Coffee Research Foundation, the Tea Research Foundation, and the Kenya Sugar Research Foundation. It currently oversees a network of national research institutes and centres around the country (Devex, n.d) with a focus on food, horticulture, and industrial crops (KALRO, 2022).

KALRO provides breeder and basic seed for multiplication to companies that have a licensing agreement with KALRO (GoK, 2021b), and provides planting materials for crops important for food security. However, crops such as pulses, legumes, sorghum, root crops and some vegetables do not attract investment in research and development (R&D) from the private sector (GoK, 2021b). A total of 60 breeders produce seed for all crops in the country (Waithaka, 2018) and these are registered with the Plant Breeders Association of Kenya (PBAK) which was registered in 1996 to incorporate breeders’ voices in the development of breeding regulatory frameworks and to address issues such as breeder royalties and representation in the variety release committee and key meetings (Mabaya et al., 2020).

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⁷ A research body mandated by the Constitution to conduct research in livestock and crops
⁸ These include maize, cassava, sorghum, Irish potato, sweet potato, and banana, among others.
According to The African Seed Index (TASAI), the registration of breeders in the PBAK is a huge challenge as a result of the high costs involved, and only a few private breeding companies can afford to register and thus be involved in this sector (Mabaya et al., 2020). This raises important questions about the need for such a body that fails to support breeders from national/public research institutions and illustrates how skewed such entities are towards protecting the economic interests of corporate breeders and private seed companies engaged in commercial seed production.

Regarding key crops such as maize, bean, cowpea, and sorghum, private seed companies such as QualiBasic Seed, in partnership with CGIAR’s International Maize and Wheat Improvement Center (CIMMYT) and ICRISAT, provide basic/foundation seed (Waithaka, 2018). CGIAR has thus also strategically positioned itself firmly within an increasingly corporatised research and development arena and has been granted privileges to carry out research in the country under the terms of bilateral memoranda of understanding (MoUs) and host agreements, discussed further below.

**Seed regulatory landscape in Kenya – key issues**

The seed industry, and in particular the formal/commercial seed sector, is governed by several policies and legislation arising from policy reforms. These include the Kenya National Seed Policy (2010); the Crops Act No. 16 (2013) revised in 2016; Kenya Seed and Plant Varieties Amendment Act 2012 (Cap 326) and its regulations of 2016; and the Kenya Agricultural and Livestock Research Act No. 17 of 2013 (revised in 2018). These regulate seed breeding, variety release, production, certification, marketing, and seed distribution. Kenya’s membership to international organisations and treaties, but also regional economic blocs such as Common Market for Eastern and Southern Africa (COMESA) and the East African Community (EAC), has also largely shaped national seed policymaking related to seed, especially regarding variety release and seed certification. Kenya is a member of the International Seed Testing Association (ISTA) and Organization for Economic Cooperation and Development (OECD) schemes for seed certification. In 1999, Kenya also joined the International Union for the Protection of New Varieties of Plants (UPOV) under the Convention’s 1978 Act and later acceded to the 1991 UPOV Act in 2016. Membership of ISTA, the OECD seed certification schemes and adequate seed testing laboratories, and UPOV 1991 are necessary prerequisites for Kenya to embark upon international and regional seed trade.

The Kenya Seed Policy of 2010 outlines the seed sector strategy of the government, while the Seed and Plant Varieties Act of 2012 is the national seed law. The seed industry is regulated by KEPHIS, which is responsible for variety evaluation, registration, and release; plant protection; national listing; licensing; certification; and collection of royalties. KALRO is responsible for research and breeding alongside universities and seed companies. Seed production and processing is conducted by seed companies while education, training, and extension support is provided by KEPHIS, seed companies, STAK, KALRO, extension agents, NGOs, and rural agro-dealers (Mabaya et al., 2020). Seed distribution and sales are
mostly done by seed companies, rural agro-dealers, NGOs, and national and county government agencies (Mabaya et al., 2020).

Key seed policies in Kenya discussed above are said to have been developed largely by the private sector, driven by STAK, with no inclusion of smallholder farmers and local communities in the decision-making process. As a result, draconian legislation such as the Seed and Plant Varieties Act of 2012 (Cap 326), which criminalises farmer seed, has had a huge impact on smallholder farmer seed systems (see text box below).

The lack of recognition of FMSS is glaringly obvious in the seed policy and legislation landscape in Kenya. Only the Seed Policy of 2010 recognises both commercial and FMSS and – like the Kenyan Constitution of 2010 – mention is made of indigenous crops and tree species as being important for food security and the need to conserve germplasm. However, after more than a decade, there has been no progress made by the government to support indigenous seed systems as part of FMSS. Rather, farmer seed and indigenous seed has been denigrated and considered as problematic by the government, while key interest remains focused solely on the development and enhancement of the commercial seed sector. Adding insult to injury, the provisions in the Seed and Plant Varieties Act Amendment of 2012 (Cap 326), have gone so far as to threaten the very existence of the FMSS. This law has entrenched the narrative that certified seeds are better, i.e., disease-free, viable, and high yielding, and farmer seed is rather considered as ‘grain’ and not ‘seed’. According to an official at KALRO, anything that is not certified is not ‘seed’ as per the Seed and Plant Varieties Act of 2012, and the priority of the government is to increase the percentage use of certified seed by smallholder farmers away from FMSS.

However, there are efforts underway aimed at changing this perception of FMSS and advocating for its legal recognition. The Inter-Sectoral Forum on Agrobiodiversity and Agroecology (ISFAA), which was launched in 2020 and domiciled under the Ministry of Agriculture, is aiming to revive the draft regulation of 2015 that recognises and protects indigenous seed. However, the process, despite having support from the government, is dependent on external funding with there being little to no commitment from the government to allow funding and push this process forward. However, it is hard to see how such legal recognition can come into being when the Seed Law criminalises farmers’ and indigenous seeds – unless substantial changes are made to the Seed Law itself.

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9. Interview with Dr Oulu, Chief Coordinator of ISFAA on 7 July 2022
10. See Chapter 2, Article 11 (3) (b) of the Kenyan Constitution of 2010
11. Interview with Dr Oulu, Chief Coordinator of ISFAA on 7 July 2022
12. Interview with Mr Benjamin, Assistant Director for the Crop Development at KALRO on 4 August 2022
13. Interview with Mr Benjamin, Assistant Director for the Crop Development at KALRO on 4 August 2022
14. Interview with Dr Oulu, Chief Coordinator of ISFAA on 7 July 2022
15. Interview with Dr Oulu, Chief Coordinator of ISFAA on 7 July 2022
Draconian Seed and Plant Varieties Act of 2012 and Crops Act of 2013

Kenya’s Seed and Plant Varieties Act of 2012 – which repeals the 1972 Seeds and Plant Variety Protection (PVP) Act – is a typical commercial seed and PVP law that contains provisions relating to certification, variety evaluation, and release, and plant breeders’ rights, aimed at regulating the commercial seed sector. However, it is also a unique seed law, in that it contains provisions for both seed marketing regulation and plant variety protection. It differs from the norm of having discreet and separate legislation for PVP. For varieties to be registered, these must conform to the ‘distinct, uniform, and stable’ (DUS) requirements, and must have undergone performance trials for at least two seasons. The law provides strict procedures for the sale and marketing of certified seed and criminalises the sale and sharing of all unindexed seed,16 including indigenous seed.17 Farmers who continue their age-old seed saving and exchange practices are thus violating the law and face a jail term of six months or a fine of 20 000 Kenya Shillings (USD 180) (Ngotho, 2021b; Nyakundi, 2022).

The Act’s provisions relating to PVP are largely modelled on UPOV 1991 and even go beyond UPOV. The Seed and Plant Varieties Act, previously based on the 1978 Act, was amended after Kenya acceded to UPOV 1991 in 2016. As widely documented, UPOV is a Eurocentric, authoritarian, inflexible instrument of intellectual property rights, unsuitable for African seed and agriculture systems. The Seed and Plant Varieties Act is principally designed to safeguard the economic interests of commercial seed breeders and is at odds with the protection of human rights of small-scale farmers, particularly their rights to use, save, exchange, and sell farm-saved seed: as contemplated by Article 9 of the International Treaty of Plant Genetic Resources for Food and Agriculture (ITPGRFA) – which Kenya is a Party to. The Seed and Plant Varieties Act is also in violation of Article 19 and numerous Articles of the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP) (ACB, 2021a).

Breeders’ rights are highlighted in Section 20 (1) of the Act, granting exclusive rights and permission for other breeders and seed producers to undertake further development and propagation, subject to the payment of royalties (GoK, 2012). These rights also extend to harvested material18 and products arising from the unauthorised use of harvested material.19 Extremely limited and meagre exceptions to breeders’ rights are contained in Section 20 (1E), which is based on Article 15 (2) of UPOV 1991. Also known as farmers’ privilege, Article 15 (2) gives a Contracting Party to UPOV 1991 a discretion to allow farmers to use the product of the harvest that they have obtained by planting propagating material of protected varieties on their own holding only. It must be noted that this is the only exemption in Kenya’s PVP law, whereas even UPOV provides for a compulsory exemption,20 in that private acts for non-commercial purposes such as exchanges and local rural trade must be exempted from the scope of a PVP law.

16. In this case, unindexed seed is seed that is not included in the national list of names of plant varieties (also known as the National Crop Variety Index), allowed for sale (See Section 7 of the Kenya Seed and Plant Varieties Act of 2012 (Cap 326) and the National Index of Plant Varieties Regulations).
17. See Section 8 of the Kenya Seed and Plant Varieties Act of 2012 (Cap 326).
18. See Section 20 (1) (A) of the Seed and Plant Varieties Act of 2012 (Cap 326).
19. See Section 20 (1) (B) of the Seed and Plant Varieties Act of 2012 (Cap 326).
Further to this, the Seed and Plant Varieties Act of 2012 should be read together with the Crops Act of 2013 – administered by the Agriculture and Food Authority (AFA). The Crops Act of 2013 enables the prioritisation of commercial crops\(^\text{21}\) for the purposes of accessing and receiving crop development funds and additional support by way of farm inputs and access to markets for produce (Munyi, 2019; GoK, 2013). Provision is made for compulsory or voluntary registration with breeding programmes, and a list is also provided for those crops that have no breeding programmes. Section 16 requires dealers\(^\text{22}\) in respect of scheduled crops\(^\text{23}\) to be registered in accordance with prescribed regulations and requires a license to be obtained for the manufacture or processing of products derived from a scheduled crop.\(^\text{24}\) The Act appoints county officers and crop inspectors to inspect each scheduled crop to ensure compliance (GoK, 2013). This highly regulated, controlled, and monitored value chain has been put in place for commercial crops and products, for all parts of the value chain, from crop breeding and development to technical and financial support and capacity to access the markets. Markets are highly regulated and prefer registered dealers along the value chain.

Taken together, the adoption of such seed and crop legislation poses a huge threat, not only to smallholder seed systems, but also to farming and food systems. Farmers’ autonomy in relation to their seed and crops will most certainly be sacrificed at the altar of the highly regulated commercial agriculture systems. Small-scale farmers will battle mightily to adhere to the stringent regulations and will finally be pushed away from seed and food production because of their inability to meet the strict standards and requirements demanded by these laws. The laws, based on a highly Eurocentric industrialised system, favour and allow few players – especially foreign entities – to participate, as we shall see below, regarding the potato seed sector. The regulations fundamentally change the nature of Kenya’s food systems, including diet, and farming landscapes. In a country where 60% of its rural workforce engages in the agriculture sector and where historically 90% of seed came from farmer seed systems, the regulations hugely imperil agricultural biodiversity, farmer-managed seed systems, and the future of small-scale farming systems in the country.

\(^{21}\) Sugarcane, tea, coffee, Rhodes grass, Irish potatoes, cotton, sunflower, soya beans, beans, barley, finger millet, maize, pearl millet, rice sorghum, wheat, and wheat (pasta)

\(^{22}\) Dealing in crops is defined in the Crops Act 2013 as: collecting, transporting, storing, buying or selling crops or crop products – but in the case of food crops, excludes any non-commercial activity.

\(^{23}\) Scheduled crops are defined in the Kenya’s Crops Act 2013 as any of the crops listed under the First Schedule – prioritised commercial crop – and this will also include any other crop the Cabinet Secretary declares to be a schedule crop.

\(^{24}\) See Section 18 of the Crops Act of 2013.
The case of the potato seed industry in Kenya

Globally, potato ranks as the fourth staple food after wheat, maize, and rice (FAO, 2019). In Kenya, it is the second most important crop after maize and is viewed as both a staple and a cash crop for many rural and urban families (Kaguongo et al., 2010). Potato, among other crops, has also been prioritised in Kenya’s Big 4 Agenda and the ASTGS, in attempts to attain food and nutrition security (Ayieko et al., 2021). These policies place special emphasis on seed multiplication and distribution to address the shortage of certified seeds (Ayieko et al., 2021). At least 1.5 tonnes of potatoes worth 40–50 billion Kenyan shillings are produced annually by 800,000 farmers (World Bank Group, 2019) on 192,000 ha (Ayieko et al., 2021). Potato production takes place mainly in the highlands of the Central, Eastern and Rift Valley regions, in the Mau range, and the slopes of Mt Kenya, with other regions scaling up production on a commercial basis. The main potato-growing counties include Nakuru, Nyandarua, Kiambu, and Meru counties, with counties such as Bomet, Narok, and Bungoma joining in on a lesser scale (World Bank Group, 2019). A few counties such as Meru have also identified potatoes as a flagship crop (Ayieko et al., 2021). The potato value chain employs over 3 million people, comprising producers, market agents, transporters, processors, vendors, retailers, and exporters (CABI, 2022). According to experts in the field, there are major challenges associated with potato production, which include lack of adequate land; the prevalence of potato diseases such as bacterial wilt, potato blight, and viral diseases; intensive management practices associated with the production of
History of the potato sector in Kenya

Kenya’s commercial potato seed production system is modelled on the European system (Kaguongo et al., 2013). The potato was introduced by European settlers and first cultivated in Kenya in the 1880s (NCPK, 2018). New potato varieties such as Kerr’s Pink were introduced in national laboratories and breeding stations in 1907 in Njoro (Komen et al., 2015). Potato seed production began in the 1950s (Kaguongo et al., 2013), and in 1963 variety development with German varieties was promoted by the government (Komen et al., 2015).

In 1967, a potato development programme was established for variety screening, plant breeding, and seed multiplication, with technical support from Germany and the United Kingdom, due to disease pressure on potato varieties (Kaguongo et al., 2013). This was followed by the setting up of a basic seed production station at Tigoni – currently known as KARI/KALRO Tigoni – which became a fully-fledged potato research station in 1979. In the 70s and the 80s there was also collaboration with local and international research centres such as the University of Nairobi (Faculty of Agriculture) and the International Potato Center (CIP) – one of CGIAR’s – with a national potato programme focusing on research and extension (Kaguongo et al., 2010). The result was an increase in the production of basic seed and varieties such as white- and red-skin potatoes, which were widely adopted.

The collaboration between KALRO and CIP resulted in the release of varieties resistant to late blight and bacterial wilts such as Tigoni 1, Kenya Furaha, and Asante (Ayieko et al., 2021). During this time and progressing into the 1980s, the potato seed system was fully controlled by the public sector, with the maintenance and supply of clean seed done by CIP. Multiplication was done by a government parastatal, the Agricultural Development Cooperation (ADC), and several large-scale farms. Due to political interference and the appropriation of land that belonged to private individuals, for potato research for production, there was reduced capacity for potato seed production between 1982 and 1997 (Kaguongo et al., 2010; 2013). During this time, farmer seed systems continued to dominate and ensured the supply of seed for many small-scale farmers around the country.

Now, the most popular local potato variety in Kenya is Shangi, due to its yield, market demand, seed availability, and cooking qualities. It is owned by KALRO and was released in 2015, in collaboration with CIP, and compared to other potato varieties. Of the market share, 80% is made up of Shangi varieties, despite county governments, government agencies, and other stakeholders thrusting new varieties onto farmers (Muritu, 2021). Other popular publicly owned potato varieties include Dutch Robijn, Asante, Sherekea, Purple Gold, among others.
potato varieties and particularly those that are imported; underdeveloped markets; and too few adequate crop and seed storage facilities (Komen et al., 2015).

**Potato seed systems in Kenya**

Seed systems within the potato sub-sector in Kenya are categorised as formal, semi-formal, and farmer seed systems. Farmer seed systems dominate the potato sub-sector, comprising 96.3% of the total seed used, whereas ‘clean and selected seed potatoes’ (see further below under the semi-formal seed system) contribute only 2.6% and certified seed 2% (Nieuwsbericht, 2020). Kenya’s annual demand for potato seed is 320,000 tonnes, against the production of 6,700 tonnes (World Bank Group, 2019). The high percentage of use of farmer seed in the potato sub-sector can be attributed to several factors such as the high cost of certified seed (a 50 kg bag of certified seed costs KES 2,500–3,000 (USD 25–30) and the lack of availability of clean potato seed. Research shows that smallholder farmers in low- and middle-income countries are unable to afford the costly certified potato seed (Forbes et al., 2019). However, other studies done in traditional Andean potato seed systems have found that farmer seeds have continued to dominate for millennia, with a very low occurrence of potato viruses, especially where there is support for these systems. Unfortunately, despite the contribution of farmer seed systems in making seeds available, these are hugely disregarded and considered to be riddled with pests and diseases. In fact, they are incorrectly regarded as the cause for the low and declining yields in the country and are thus marginalised. This is particularly worrisome when seen in conjunction with the Seed and Varieties Act of 2012 (Cap 326), which criminalises the sale of farmers’ seed, as mentioned above, and the strict registration and standards required for crop production, as per the Crops Act of 2013.

The formal potato seed system is further categorised into public, public-private, and private (closed value chain) (Ayieko et al., 2021). Within the formal seed system, seed breeding, maintaining crop variety, and supplying of foundation/basic seed has largely been done through tissue culture technology, by Tigoni Kenya Agricultural Research Institute (KARI/KALRO) in collaboration with CIP, and this is then passed on to seed multipliers for bulking and distribution (Ayieko et al., 2021). In addition, commercial seed growers such as Kisima, Suera, and the IPM Potato Group also use tissue culture to produce varieties for the Kenyan market (Nieuwsbericht, 2020). KEFIS, in turn, is responsible for potato seed certification. Certified seed bulking farmers, farmers groups, and private companies, including the ADC, are involved in the multiplication of basic seed.

Seed and crop legislation for potato allow for the importation of basic potato seed for multiplication, but also for the importation of germplasm for production of basic and seed classes (Ayieko et al., 2021). Stemming from the Crops Act of 2013, the government has developed the Crops (Irish Potato) Regulation of 2019, which further regulate commercial activities regarding the crop. The formal seed industry also comprises private seed growers who produce certified seed potatoes from basic seed obtained from KALRO/KARI or import and multiply pre-basic seed (World Bank Group, 2019). AGRICO – a Dutch farmers’ cooperative based in the Netherlands and active in over 80 countries – through its subsidiary AGRICO East Africa is the leading potato
importer in Kenya and already has several registered varieties on the National Variety list. Key potato processing varieties sold in Kenya are AGRICO’s Markies, Manitou, and Destiny potato varieties; Jelly (owned by Danespo from Denmark); and Dutch Robjyn. Markies is the most popular for processing for use as French fries, Manitou is mostly a table variety for cooking purposes, while crisps processors all over Kenya demand Destiny due to the round, medium-sized, tube-like shape, and high matter content. The National Potato Council of Kenya (NPCK), a PPP and a multistakeholder organisation, is also responsible for planning, organising, and coordinating the value chain activities of the potato sub-sector (Potato.PRO, n.d).

The semi-formal seed system involves growers producing two different types of seed products: clean seed and positively selected seed. Clean seed is multiplied at the farm level and originates from certified seed. This process was supported through training conducted by the Ministry of Agriculture, KARI, and the German Agency for Internal Cooperation (GIZ) (Kaguongo et al., 2013). Most of the guidelines used in the production of certified seed are also used in clean seed production, where only sample testing and certification by KEPHIS are omitted (Kaguongo et al., 2013). However, clean seed is not legally recognised in

Crops (Irish Potato) Regulation, 2019

The Crops (Irish Potato) Regulation has been developed to guide the promotion, development, and regulation of the production and trade of Irish potatoes (GoK, 2019b) and came into effect in April 2021. The regulation provides for the registration of key actors along the value chain including collection centres for Irish potatoes. The regulation is also concerned with quality assurance and marketing of Irish potatoes and the establishment of standards, including packaging, testing, grading and transportation, among others. It further designates collection centres and markets for the commercial buying and selling of Irish potatoes, thus regulating the movement of potatoes along the value chain.

Despite smallholder growers being recognised under the regulation, they must be registered with a growers’ association, issued with a certificate, and not be registered with more than one grower association. Even though the regulation also provides for the non-commercial activity for domestic consumption under its definition, it goes further to mandate that the selling and buying of Irish potatoes for commercial purposes and home consumption be done in collection centres which have to be registered. Thus, we see the push to exercise commercial control over smallholder farmers through the imposition of registration requirements and collective sale of produce in a tightly controlled and regulated value chain system.

25. See Section 4 (2) (a) and (b) of the Crops (Irish Potato) Regulation of 2019
26. These include growers, grower associations, dealers, Irish potato centres, processors, warehouses, importers and exporters
27. See section 4 (2) (a-b)
28. See Section 4 (2) (c-e) of the Crops (Irish Potato) Regulation of 2019
29. Smallholder grower is defined as a person who cultivates Irish potatoes in an area of four hectares or less
30. See Section 9 (4) of the Crops (Irish Potato) Regulation of 2019
Crops (Irish Potato) Regulation, 2019

The implementation of the 2019 regulation was faced with massive resistance from farmers. Farmers were of the view that there was no public consultation (Gitonga, 2021) and raised concerns that the regulations would push them out of the potato farming sector. Unregistered potato farmers could face a one-year imprisonment or KES 500,000 fine (equivalent to USD 5,000) for growing a scheduled crop (allAfrica, 2021). In addition, the regulation further set strict requirements for packaging and the use of post-harvest chemicals (allAfrica, 2021). The sale and buying of potatoes in collection centres would entail incurring high transport costs for farmers in such a centralised and standardised scheme that would also expose them to cartels.

The government responded to this resistance by activating the Crops Act of 2013, and 150 enforcement officers were dispatched to ensure compliance in the main potato-growing counties31 (Ngotho, 2021a). They immediately started cracking down on the packaging of potatoes that did not comply with the requirement that potatoes are packaged in 50 kg bags; with the ostensible aim of preventing cartels from expropriating or taking advantage of smallholder farmers (Ngotho, 2021a).

While farmers are willing to comply with the packaging requirement, they are still concerned with the other aspects of the regulation, such as the sale of uncertified seed, registration requirements, and strict standards. These are certainly bound to criminalise the production and sale of small-scale farmers’ produce, while only allowing certain players to enter the potato crop value chain, including importers and exporters of Irish potatoes, large commercial players, especially potato cartels.

31. Including Nyandarua, Narok, Nakuru, Meru, Nyeri, Elgeyo Marakwet, Uasin Gishu, Kiambu and Nairobi
Kenya, and thus cannot be sold through formal market channels/commercially (Kaguongo et al., 2013) unless a farmer is certified by KEPHIS (farmbizAfrica, 2020). Thus, the provisions of the Seed and Plant Varieties Act still apply in this context where only certified seed is recognised.

**Positively selected seed** are seed potatoes produced from farmer seed through the selection of the best-looking plants grown by farmers trained in seed selection and management and it does not involve the stringent procedure and inspection done by KEPHIS. As with clean seed, positively selected seed is not allowed to be traded on the market.

**Foreign interests in the potato seed industry**

Due to the shortage of certified potato seed in the country, the Kenyan government has entered into several bilateral agreements with the British, Dutch, Irish, and French governments respectively, regarding the importation of seed potatoes to increase the availability of certified seed, especially for increased production of ware potato. A good example of these bilateral agreements is the signed Memorandum of Understanding (MoU) with the Dutch government to import seed potatoes from the Netherlands and strengthen the capacity of Kenyan regulators concerning quality assurance and equipping laboratories (Ayieko et al., 2021). The partnership, in the form of PPP through the Kenya/Netherlands Seed Potato Development Project, began in 2012 and has since facilitated the registration of more than 40 Dutch potato varieties (KEPHIS, 2022). The third phase of the project, which cost a total budget of EUR 995,724 (Wageningen Centre for Development Innovation, n.d.) was estimated to end in 2019.

In addition, the Irish government has been funding the production of potato seed and ware potato market development through a consortium of public and private organisations. The Potato Capacity Building Project, a three-year initiative, with a budget allocation of GBP 1 million from Irish Aid, was launched in 2018 and is another PPP implemented by the International Fertiliser Development Center (IFDC) – also with links to AGRA – in collaboration with two private companies: Kevian Kenya Ltd, a major Kenyan food processing company; IPM, an Irish company; while other stakeholders include Teagasc Sustainable Food Systems Ireland and its Kenyan subsidiaries (Irish Aid, 2019). The project’s aim is to train 3,000 smallholder farmers on good agricultural practices, facilitate access to affordable certified potato seed, and create formal and non-formal markets through agribusiness linkages between Kenya and Ireland (Irish Aid, 2019; IFDC, n.d.). This, in turn, is said to increase household revenue and food security. The project has also been said to have facilitated the regulation of potato sales in Kenya – through the passing of the stringent 2019 Crops (Irish Potato) Regulation. Here we can also see the influence of PPPs on policy.

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and regulatory spaces that end up being punitive for smallholder farmers and only allow the key interests of foreign entities and corporations to operate in the sector.

In 2020, the National Potato Council of Kenya (NCPK) entered a partnership with Corteva Agriscience – the second largest multi-national seed company globally, based in the United States – to introduce new technologies and train smallholder farmers on how to improve potato yields using corporate seed, pest and disease management, post-harvest management, and record-keeping (PotatoPro, 2020). Corteva officially launched its regional operations in Kenya in 2019, aiming to expand its market reach (Food Business Africa, 2019). Under Kenya’s Vision 2030, the company has already earmarked training programmes to enable access to agricultural inputs and market linkages for smallholder farmers.

The need for continuous external support points to hopelessly inadequate public financing for public research institutions, which results in dependence on external sources of funding and intervention, including the corporate sector. The potato seed sector has also received funding from Dutch and Irish governments through the ADC to support potato research and production (Ayieko et al., 2021). In addition, it has received financial and other support from AGRA, the World Bank and USAID, with AGRA specifically funding the training of breeders and production of foundation seed (Ayieko et al., 2021). However, this has come at a cost, as the funding is linked to corporate capture of the Kenyan food market. Evidently, agreements with both the Netherlands and the Irish governments involve the participation of companies from their own countries in the Kenyan potato supply chain.

Foreign potato seed companies stand to gain from profits arising from the import and trade of their varieties in the Kenyan market. Consequently, potato varieties in the National Variety Catalogue that have been categorised under conventional management varieties are largely owned by public institutions such as KARI/KALRO or in collaboration with CIP and foreign companies; and high input intensive management varieties are largely owned by foreign entities based in the Netherlands and Agrico East Africa.33

In the past, the importation of foreign varieties into the country has sparked controversies related to the rejection of potato tubers (about 500 metric tonnes) that failed to meet quality tests related to pests and diseases (Ayieko et al., 2021). In addition, civil society organisations have also questioned the suitability of imported potato varieties due to the difference in agroecological zones between Europe and Kenya. Concerns have further been raised regarding the quality of imported seed for multiplication, which are up to the seventh generation (Ayieko et al., 2021), and thus Kenya could be seen as a dumping ground for unwanted or rejected seed technologies discarded by Europe.

There are still challenges associated with increasing the local production and availability of potatoes for processing, despite the efforts to allow for the importation of potato seed from outside the country. This

Research on genetically engineered potato in Kenya

GM potato research in Kenya can be traced as far back as 2012, with permits granted to ILRI, in collaboration with CIP, for contained use trials under laboratory and greenhouse conditions and open field trials (NBA, 2022). Four applications have already been approved to conduct research on virus, fungal (late blight), and bacterial wilt resistance, with the latest approvals granted in 2022, using second generation GM – genome editing technologies. In April 2022, the CIP, in collaboration with ILRI and the Biosciences eastern and central Africa (BecA), applied for a permit to conduct contained use experiments involving 3R-gene LBR (Lamin B Receptor) potato transgenic events of farmers’ popular potato varieties, for multiple potato disease resistance, and this was approved on 14 November 2022 (NBA, 2022).

The latest GM potato projects are taking place against the backdrop of evolving PPPs on R&D in the country, such as Feed the Future (FTF)’s Global Biotech Potato Partnership (GBPP). The GBPP is a five-year initiative implemented by Michigan State University (MSU) for GM potato value chain development and commercialisation in Asia (Bangladesh and Indonesia) and Africa (Kenya and Nigeria) (USAID, 2022). Other partners in the GBPP include CIP, University of Minnesota (UMN), University of Idaho (UI), Bangladesh Agricultural Research Institute (BARI), Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development (ICABIOGRAD), KALRO, National Root Crops Research Institute, Umudike (NRCRI), and the AATF (USAID, 2022). The USAID awarding funding of a total of USD 13 million for the two continents (CIP, 2022) has resulted in the application by KALRO and CIP for confined field trials involving the 3R-gene LBR potato transgenic events, (Desiree, Victoria/Asante, Shangi, Tigoni), with other GM activities being undertaken in collaboration with ILRI/BecA (USAID, 2022). These collaborations show the influence of PPPs in the uptake of risky technologies that will have severe adverse implications for smallholder farmers in the country.

34. BecA was set up, supported and funded by Syngenta Foundation with the claims to improve food security for resource-poor farmers, through use of modern bioscience technologies.
36. The LBR gene provides instructions for making a protein called the lamin B receptor.
has been attributed to the lack of widespread adoption by farmers of certified seed, as these require intensive agronomic practices (especially those that are imported) and a shortage of available planting materials. As a result, farmers prefer sourcing seed from farmer seed systems and accessing readily available seeds from their own farms (saved seed), local markets, or neighbours. Despite this, there has been very little effort to support farmer seed systems, while foreign varieties enter and dominate the value chain and market.

The need for autonomy and sovereignty in Kenya’s seed industry

Corporate control and capture of Kenya’s seed industry, as illustrated by the case of the potato seed sector, is evident – and is a process that has been set in motion and ongoing for several years. With the current trajectory of agricultural development that is being pushed in the country and facilitated by a restrictive policy environment, the future for smallholder farmers and their seed and food systems looks bleak. Dependence on the private sector and foreign entities for agricultural development will continue to push smallholder farmers out of agriculture and the food system. Ultimately, it is the corporations that stand to gain in this inequitable and extractive corporatised agricultural system, as they flood the market with their varieties and products, with little or no benefits to Kenya’s local economy. Thus, the case of the potato sector shows that claims about creating a conducive environment for the private sector to further improve the seed industry are farcical, as what is really taking place is corporations are being given control over what is produced, grown, and consumed.
Globally, there has been growing recognition for the transition to just and equitable food systems, particularly in the face of multiple and converging crises that further impact our food and agricultural systems. Such a transition requires the creation of a new paradigm that includes the participation of key people in the food production system – particularly smallholder farmers. However, for this to happen, African governments need to recognise the huge role played by smallholder farmers in the building of the local food economy and the importance of supporting and nurturing these systems. Rather than creating restrictive and draconian legislation that favours the private sector, policymakers need to provide a just, equitable, and enabling environment for smallholder farmers and their systems to thrive. The push for an alternative socially just and ecologically sustainable seed and food system is imperative and urgent, to dismantle corporate capture and expansion, and protect the future of smallholder farmers, agricultural biodiversity, and food and agricultural systems in the country.

The rise of Kenya’s fast-food industry and demand for potato processing varieties

The Covid-19 pandemic (Conversation, 2022). The argument put forward by KFC was that Kenyan potato varieties are unable to meet the franchises’ quality standards, and that although the existing standards for the fresh potato tuber (ware potato tuber) had been adopted at the East African level (EAC, 2010), these were lacking at the national level (The Conservation, 2022). This calls into question the investments made and PPPs brokered by the Kenyan government over the years, to ensure the quality of potato seed. Furthermore, the dependency on the importation of potatoes from outside the country points to regulations that favour this, rather than supporting local smallholder farmers. KFC has been in Kenya for more than a decade (Andea, 2022), but no efforts have been made to ensure that locally-produced potatoes are used. As a result of the KFC debacle, the NPCK and KFC Kenya identified the Markies variety to supply KFC and reduce dependency on imports (Andea, 2022). However, concerns related to standards and the lack of infrastructure for processing and storing frozen chips have been raised (Andea, 2022), which means that the importation of potato chips for fast food franchises will not be addressed any time soon.
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